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E CIV, NUMBER 803 FEBRUARY 1944 TABLE OF CONTENTS, PAGE II



NOTABLE ACHIEVEMENTS PRAISED

Science - Industry - Policy

Serum-virus immunization *as a science,* the development of plants, laboratories, and technicians *as an industry,* and the utilization of collegiate technicians *as a basic policy,* in providing the means of vaccinating the major percentage of 100 million hogs against cholera in 1943, have been praised as notable achievements in food production.

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$7.00 per annum. Foreign $8.00; Canada $8.00 Single Copies 75 cts. prepaid in U. S.

Published monthly at 600 S. Michigan Ave., Chicago, Ill., by the American Veterinary Medical Association. Entered as second class matter August 10, 1932, at the Post Office at Chicago, Illinois, under the act of March 3, 1879. Accepted for mailing at special rate of postage provided for in Section 538, act of February 28, 1925, authorized August 19, 1941.
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Journal
of the
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VOL. CIV FEBRUARY 1944 NO. 803

Army's Four-Footed Soldiers

Lt. Col. DOUGLAS PARMENTER, A.U.S.
Washington, D. C.

THE ARMY'S war dogs are not pampered pets by any means, and they are by far the best trained, best equipped, and best cared for dogs in the world. From the moment they are inducted into the service until they are finally sent to the field for patrol, sentry or other active duty, their health, equipment, diet, care, and training are the subjects of vital concern to everyone connected with the dog-training program. And, by the time they have been trained by the Quartermaster Corps for active duty, they are in perfect physical and mental condition, ready for the exacting jobs they are to do.

CLOTHING AND EQUIPMENT ISSUED

Just as clothing and equipment are the first items a soldier receives when he enters the Army, so are canine wearing apparel and equipment the first things a dog receives. The TBE, or Table of Basic Equipment, for a war dog includes two collars—a leather kennel collar and a chain working collar—a leash, a 30-ft. exercise longe, a kennel chain, a brush and comb, a muzzle, water-repellent blanket and individual feeding and watering pans. Every item of his equipment is individually issued and, as a rule, is never used for another dog except in the case of nail clippers and file. These are not needed often enough to warrant issuing separate ones for each animal.

TATTOOED IN LIEU OF TAGS

The Army dog doesn't wear the famous Army dog-tag. His identifying serial number is tattooed on the inside of his left flank, and there are soldiers, irritated by the two identification discs dangling at the end of a chain around their necks, who will tell you that in this instance, at least, the dog gets a break. The tattooing is done with ordinary, commercial equipment originally developed for marking farm animals and poultry, and is permanent and virtually painless. The tattooing probably bothers the animal much less than the indignity of being held on his back while it is being done.

VACCINATED AGAINST DISTEMPER

He has his "shots" for distemper and other canine ills. He is constantly under the eyes of Army veterinarians and trainers who watch for signs of illness or other manifestations of inefficiency. After all, a war dog must be in the peak of condition, both mentally and physically, all the time, or the special senses and perceptions which make him valuable to the Army are blunted and his value seriously impaired. He takes vitamin pills to supplement a balanced diet of meats and commercial dog foods which are given to him by the same man at the same time every day. His life is regulated as carefully as any soldier's.

HAS SERVICE AND LOUNGING COLLARS

Perhaps the most important items of his equipment are the two collars, each of which is intended for a specific purpose. The leather collar is the dog's equivalent of a lounging robe. When he is wearing it the dog knows he is off duty—at ease. When the chain collar is put on, he knows he is on duty and deports himself accordingly, for a change in collars becomes significant to the animal early in his training. Like a baby in a sun suit, the dog in a leather collar is a frisky, playful, noisy, carefree creature; in a chain collar, he becomes menacingly quiet, every nerve tense for an unfamiliar or unfriendly scent or movement, a trained, obedient animal sensitive to every gesture, every order, every movement by the man who works him. By some native in-

stinct, aroused simply by a change in neckwear, he knows what is expected of him and gives it generously.

The other items of his equipment are important, too, but relatively less important than the two collars. The other articles are routine—static—and are a part of the possessions of every well-kept dog. An Army dog could get along on no less.

MUZZLE RARELY NEEDED

Special conditions or unusual considerations may require working the animal on the 30-ft. exercise longe instead of at the end of the short lead. In such cases, the longer line is used without hesitation. Wet weather may dictate that he wear his blanket, a purely utilitarian garment in water-repellent, olive drab cotton, warm enough to prevent his being chilled, or to warm him if he becomes chilled. His muzzle is used rarely, and then only when he is in exciting, strange surroundings or unavoidably mingling with unfamiliar persons. Under training and under conditions surrounding the quartermaster corps training centers, he is never muzzled, for his basic training inculcates in him the ability to get along amicably with other dogs and with the soldiers who are training them. A fight among Army dogs, even cooped up five or six deep in a truck, is rare.

NO WHIPPING

One item definitely not in the Army dog's equipment is a whip. When a little persuasion is necessary, the loose end of the leash is adequate. Even this is used sparingly.



War Dog Carrying Light Machine Gun and Tripod

Army dogs are "good" dogs; they mind their own business, restrain their curiosity about so many things dogs are curious about and work hard whenever they are called upon, sometimes twenty-four hours in a stretch.

RECREATION

But a dog's life in the Army isn't all work. He plays too. After working-hours, on Saturday afternoons, and at odd moments during the day, he puts duty behind him and chases a rubber ball, rolls around on the ground or plays touch and go with his handler, chews a stick or a friendly but well-gloved hand, learns tricks and goes through paces that would seem undignified in anything but a kitten or a lap-dog. Even this play is a part of his training. It toughens him, teaches him to catch or retrieve, run or return when an order is given, and to obey implicitly the man who is directing him. He's a one-man dog and probably would permit himself to be burned alive before he disobeyed that man's orders.

Prevention of Bacterial Food Poisoning by Food Preservation Methods

L. B. JENSEN, Ph.D.
Chicago, Ill.

IT IS COMMON knowledge that veterinary science exerts a far-reaching influence on the welfare of man. There have been many by-products of veterinary science. At this time, it is interesting to recall the development of the synchronized, meat-inspection chain and the extension of this idea to the assembly line of production of tanks, automobiles, airplanes, and other implements of war.

The ultimate objective of our work in production, preservation, and judgment of foodstuffs of animal origin is to safeguard the consumer. It may not be presumptuous to state that there is theoretical and much factual knowledge at hand to safeguard food supplies right up to the mouth of the consumer. The application of this knowledge, however, presents certain difficulties from the viewpoints of the veterinarian and bacteriologist on the production line, in the field, and in the military camp. All appreciate the invaluable services of the Meat Inspection Division, Bureau of Animal Industry, and the Veterinary Corps. When a food has passed official inspection, its subsequent history is determined by its perishable character, the microbic content or inoculation, and the time and temperatures at which it is held. The whole problem of food preservation and the prevention of the common type of bacterial food poisoning hinges upon these factors.

BACTERIA

Most microörganisms which may contaminate foods are harmless saprophytes so far as human health is concerned, but there are four genera of bacteria having species which can cause food poisoning. These bacteria are the staphylococci, Salmonella, streptococci, and *Clostridium botulinum*. These bacteria are dealt with in Kelser and Schoening's Manual of Veterinary Bacteriology (4th ed. 1943). Certain varieties of staphylococci are the chief offenders in bacterial food poisoning. These ubiquitous bacteria have come to professional notice in their rôle as offenders only during the past decade; hence, much work remains to be done in this field.

Not many harmless chemical methods of food preservation are known. In our own province of meat foods, we have a variety of methods to combat microörganisms. We may employ refrigeration; desiccation; curing with nitrates, salt, and sugar; smoking with hardwood smoke; culinary heating and canning; pickling with vinegar; prompt handling and rapid transportation; aseptic procedures and technical sanitation; packaging; use of active or inert gases in storage; and strong ultraviolet light.

INCUBATION ZONE

When the food-poisoning staphylococci grow for a certain length of time, they begin to elaborate an enterotoxin. They do not cause food poisoning if their cells are ingested alone. Experimentally, and in outbreaks, we have determined how long they must grow and at what temperatures they grow in a suitable medium before they can form enough gastrointestinal irritants to produce their more or less characteristic symptoms in man. The temperature range lies between 60 F. and 115 F. The length of time varies roughly from four to eight hours, depending upon the perishability of the food—*i.e.*, on how well bacteria can grow in it. To avoid hazard from growth of these bacteria, it is well to provide a safety margin by considering the incubation danger zone from 50 F. to 120 F.

As all food products carry inoculations of miscellaneous bacteria, it must be assumed that any unprotected food may become contaminated with a type of bacteria that can form substances toxic to man.

Presented at the seventy-ninth annual meeting of the American Veterinary Medical Association, Chicago, Aug. 24-27, 1942.

From the Research Laboratories, Swift & Company, Chicago, Ill.

CARE OF FOODS

As a further safeguard against food-poisoning hazards, the foods should be cooked carefully according to instructions so that these bacteria from chance inoculation are destroyed. As an example, hams should be cooked so that the inside reaches a temperature of at least 162 F. We must apply these temperatures to the meat just like the dairy operator must pasteurize milk and cream to safeguard them. In this connection, we have seen mess halls and galleys where bone-in, smoked hams, for instance, were held at a temperature of 36 to 40 F. in the meat coolers, and, while there, sawed raw (beginning at stifle joint) on circular and band saws into slices, the slices placed in pans in the cooler, then taken to the steam pressure cookers and cooked at 8 to 10 lb. pressure for about 30 minutes. The ham slices were then served and were never held in the incubation zone for over three hours. It is apparent that this method is preferable to the cooking and then slicing methods employed presumably in many permanent camps. So far as the writer knows, no food poisoning due to ham has arisen in kitchens and galleys where the kitchen personnel cut or sawed the hams into slices and then cooked as described above. The inference is obvious. Contamination of adequately cooked hams occurs during the slicing operations and after, and when the slices are held in the incubation zone for over four hours, enterotoxin can form if poisonous staphylococci are present.

No one can tell whether or not a food is likely to make you ill (if you eat it) by the taste, smell, feel, or appearance. Many of the staphylococcus food-poisoning outbreaks have been caused by foods which show no definite off conditions. You must know how the food was handled to know that your meal is safe to serve.

The following examples will illustrate particular product hazards and methods of avoiding them.

1) When turkeys or other fowl are prepared, do not permit the stuffing or dressing to be held at a temperature above 50 F. or below 130 F. for a longer period than four hours. Never stuff the birds and then hold out of refrigeration. After the birds are served, never allow the scraps of meat and dressing or the remaining gravy to remain in the temperature zone of 50 to 130 F. for more than four hours. Refrigerate the food and warm up the food to 165 F. or higher for thirty minutes before serving again. The dressing, gravy and scraps are excellent bacterial culture mediums.

2) When sandwiches are prepared, never allow the bread or filler to remain at danger temperatures (50 to 130 F.) for a longer period than four hours. The dangerous bacteria (staphylococci) grow well in most fillers, and especially well in moistened bread. It has been shown in some large outbreaks that the bread in the incubated sandwiches became poisonous as well as the sandwich filler. Never keep the slices of bread moist with a damp cloth as is so frequently done. If the filler is ham or cured or smoked tongue, fried egg, egg salad, fish, sausage, etc., special care must be exercised so that the filler is freshly prepared from materials that have not been in the incubation zone longer than a few minutes. You must realize that if, let us say, ham has been sliced and held on platters for three hours in the "incubation zone", the life of the ham in a sandwich should only be one additional hour when held in the incubation zone before serving.

3) Dehydrated food-products such as dried eggs, dehydrated beef and pork, dried milk, etc., do not undergo bacterial spoilage if the moisture content is below 10 per cent. When these products are reconstituted by the addition of water, it must be remembered that bacterial growth begins the moment the water is added. It becomes important, therefore, that these products be protected from inoculation at all times and from the incubation zone of temperature during and after reconstitution. In general, it may be said that these dehydrated products should not be held in the incubation zone of temperature more than three hours, after the water is added for reconstitution, before the product is consumed. If a greater time is required, the product should be refrigerated to a temperature under 50 F., or heated to a temperature of over 130 F. until ready for consumption.

4) Cooked hams, if placed on steam tables, must be kept at 130 F. or above. Cooked hams must not be held for a period longer than four hours in the incubation range of temperature. It must be remembered that this time within the incubating

temperature range is accumulative, so that if the product is refrigerated at intervals, the total time of the various periods within the incubation zone should not be more than four hours.

5) Soup stocks. Hold-over soups are frequent offenders. Experiments have shown that if soups must be held over, the liquid must be cooled rapidly to 50 F. and then held in a 36-38 F. cooler not longer than three days before use. At 42 F., these stocks can spoil in less than forty-eight hours.

TO KEEP FOOD SAFE

1) Avoid contamination from likely sources of staphylococci:

(a) People with boils should not handle foods.

(b) People who sneeze or cough often, should not handle foods. Do not sneeze or cough in the places where food is prepared and served.

(c) People with sores or infected cuts on fingers and hands should not handle foods.

2) Cook all foods thoroughly.

3) Avoid the incubation zone. To be safe, always hold foods at temperatures below 50 F. or above 130 F.

With these simple precautions followed by the day and night cooks and K.P.'s, the kitchen personnel will be doing their duty by performing their customary work and helping to prevent some outbreaks of staphylococcus food poisoning as well.

COMMENT AND SUMMARY

There are many preservation methods which present theoretical means of preventing food poisoning of bacterial origin, but most of these methods call for chemical preservatives which, at the present time, are not indicated for use. There have been proposed many schemes and ideas for prevention of staphylococcus food poisoning. We experimented with penicillin broth in 1932 without success in prevention of enterotoxin formation. Actinomycin and tyrothricin are likewise without effect on the enterotoxin. Common salt does not appear to inhibit the elaboration of toxin. The toxin, when formed, is considered by some investigators to be very stable while others state that culinary heating will greatly weaken or nullify it. It has been shown that growth of these bacteria in atmospheres of carbon dioxide enhances toxin production. Hence, carbon dioxide preservation awaits further investigation in this country. In experimental production of staphylococcus toxins, we grow the bacteria in atmospheres of carbon dioxide for maximum toxicity.

There are indications that quick freezing of foods and holding of these frozen foods (fish, meat, poultry, egg magma, etc.) at specific ranges below 30 F. may effect a substantial reduction of various bacteria. In storage of natural ice, we have shown that most bacteria die off rapidly, and natural ice stored for a few months is safe even though the original water contained intestinal pathogens. Colon bacilli in ice are killed most rapidly between 30 F. and 20 F., whereas at −100 F., destruction is very slow according to Haines.

Summarizing briefly, we believe that in order to prevent the common type of food poisoning, which is due to the staphylococci, we must not permit perishable foods (some of the vegetable foods may be exceptions) to remain in the incubation zone of 50 F. to 130 F. for more than four hours. Apparent sources of staphylococci from minor infectious processes and also nasal and other respiratory tract sprays and discharges can be controlled by not permitting people with sores or infected cuts on fingers and hands, boils on any part of the body, or people who sneeze or cough often, to handle foods. Cook all designated food thoroughly.

It is difficult to determine the value of many methods which are not time-tried, and we are ever reminded of the preparation of the ancient Damascus sword steel. Old travellers and the crusaders, Palgrave tells us, saw how the matchless Damascus steel was prepared by burying worn-out horse shoes in damp cellars. The metal's weaker portions perished slowly by oxidation, and the bright particles (alloys) were discovered shining midst the brown rust and in them was concentrated the essence of the trenchant ore. This Arabian process typifies much of human endeavor and, while much "rusting" is likely to occur as time modifies our methods, there are always remaining some shining trenchant particles of useful information.

Boston Terrier puppies are apt to be allergic to milk.—*Veterinary Column in Our Dumb Animals.*

A Few of the Army Veterinarians at the London Conference



The annual conference of the National Veterinary Medical Association of Great Britain and Ireland was held at the London School of Hygiene, Sept. 9, 1943. Delegates from the British Commonwealth of Nations and the United Nations participated in the meeting. The photograph shows W. R. Woolridge, president of the British association, greeting Col. Edward M. Curley, chief surgeon, veterinary division, United States Army, in the European theatre of operations. Others in the photo are (left to right): Lt. Col. R. J. Robertson, Capt. J. J. Werner, Major R. B. Meeks, and Major R. W. Wann, all of the U. S. Army Veterinary Corps. Twenty-seven other U. S. Army veterinary officers attended the Conference.

Colonel Curley delivered an official greeting from AVMA President Charles W. Bower at the conference.

The Army Horse Breeding Program

Under the Army Horse Breeding Plan, authorized by the Congress in 1921, 660 remount stallions standing in 41 states, Hawaii and Puerto Rico, produced 18,807 foals in 1941 and 12,074 in 1942. Since the plan was started, 314,224 mares were bred to remount stallions and from these there were produced 185,511 foals. With the privately owned and bred Thoroughbred, Arabian, and Morgan stallions, a sufficiently large reservoir of horses suitable for military service has been produced, says the *Veterinary Bulletin* for July in a quotation from the May-June issue of *The Horse*.

The fact that no one can predict what the demand for military horses may be during and after the war, these figures and their source are reassuring, should a demand for riding and transport horses arise. The operations of the Russian troops around Orel, according to incidental information arriving, seem to indicate that cavalry played an important part in this successful offensive. Quoting (*The Horse*): "Certainly, we should not fail to estimate the potential value of horses in the uncertain and changing picture of war needs."

Every extra pig means a year's ration for nine people. . . . Yet more than half the farms of the country (England) have no breeding sows. . . . Pigs play a great part in contributing to the national larder.—*The Veterinary Record.*

The Anthelmintic Efficiency of Phenothiazine in Sheep
(Capsule, Bolus, Drench and Soybean Pellets)

WILLIAM M. THORNING, B.S., D.V.M., M.S., JESSE SAMPSON, B.S., D.V.M., Ph.D., and ROBERT GRAHAM, B.S., D.V.M.

Urbana, Illinois

SINCE Harwood, Habermann, and Jerstad[1] called attention to the anthelmintic properties of phenothiazine for certain intestinal nematodes of sheep, the drug has been widely used in the treatment of internal parasitism in this species. The insolubility of the drug in water and its bulky character have led to efforts to expedite administration and enhance anthelmintic properties by administering the drug in the form of boluses and liquid suspensions, as well as by mixing it with feed and salt. Roberts[2] mixed 5 per cent *beta* naphthol and 2 per cent wetting agent with 93 per cent phenothiazine and found that a dose of 0.4 Gm. per kilogram body weight was effective against certain nematodes. To promote disintegration of the dose in the stomach, an explosive-like tablet or bolus has been prepared by the addition of sodium bicarbonate and a weak organic acid. It is contended that when such a preparation comes in contact with the gastric contents, the tablet will rapidly disintegrate into small particles. Swales[3] compounded a disintegrating tablet containing commercial phenothiazine, 80 parts; starch, 8 parts; sodium bicarbonate, 5 parts; tartaric acid, 4 parts; sodium choleate, 2 parts; phenolphthalein (U.S.P.), 1 part. Tablets and boluses containing phenothiazine are available from several pharmaceutical houses.

Singer and Baker[4] prepared a suspension of phenothiazine for administration as a drench using mucilage of acacia, while commercial companies market a liquid product. McCulloch[5] found that a satisfactory aqueous suspension could be prepared by mixing phenothiazine with molasses prior to the addition of water, and the Zoölogical Division of the Bureau of Animal Industry recommends a water-molasses suspension for the treatment of parasitized sheep. Milk also has been used as a vehicle for the administration of the drug to sheep.

The disadvantages of individual medication under range or semirange conditions have prompted studies on methods of adding the drug to feed or salt. Taylor and Sanderson,[6] and Shorb and Habermann[7] reported that small daily doses of phenothiazine over a short period of time were ineffective in removing parasites from the intestines but that such doses apparently inhibited the development of larvae in the feces. Boley, Levine, Wright and Graham[8] observed that sheep refused to eat phenothiazine when it was mixed with glucose or soybean meal and that salt-hungry animals refused a 1:4 phenothiazine-salt mixture. More recently, Habermann and Shorb[9] have shown that sheep would eat a phenothiazine-salt mixture containing 8 to 10 per cent of the drug, and when this mixture was fed for a period of five days, larval development in the feces was inhibited. Britton, Miller

From the Department of Animal Pathology and Hygiene, University of Illinois, Urbana.

[1]Harwood, P. D., Habermann, R. T. and Jerstad A. C.: Efficacy of Commercial Phenothiazine in the Removal of Roundworms from Sheep. Vet. Med., *34*, (1939): 440-443.

[2]Roberts, F. H. S.: The Value of Phenothiazine in the Treatment of Oesophagostomum in Sheep. Austral. Vet. J., *15*, (1939): 38-44.

[3]Swales, W. E.: Further Experiments on the Use of Phenothiazine as an Anthelmintic for Sheep. Canad. J. Res., *17*, (1940): 266-271.

[4]Singer, A. J. and Baker D. W.: Phenothiazine as an Anthelmintic for Intestinal Parasitism of Sheep. Cornell Vet., *30*, (1940): 375-382.

[5]McCulloch, E. C.: Phenothiazine-Medicated Pellets for Range Sheep. J.A.V.M.A., *101*, (1942): 114-119.

[6]Taylor, E L. and Sanderson, K. M.: Phenothiazine—A Remarkably Efficient Anthelmintic. Vet. Rec., *52*, (1940): 635-639.

[7]Shorb, D. A. and Habermann, R. T.: Effect of Phenothiazine in the Development of Roundworm Larvae in the Feces. Vet. Med., *35*, (1940): 454.

[8]Boley, L. E., Levine, N. D., Wright, W. L. and Graham, Robert: Phenothiazine in the Treatment of Gastrointestinal Parasitism of Animals. Paper presented 58th Ann. Meeting Ohio Vet. Med. Assoc., (1941).

[9]Habermann, R. T. and Shorb, D. A.: The Effect of Phenothiazine-Salt Mixtures on the Development of Parasite Larvae in the Feces of Sheep. North Am. Vet., *23*, (1942): 318-321.

and Cameron[10] reported that a 1 : 15 phenothiazine-salt mixture fed free-choice was effective in keeping at a minimum infestation of sheep with Ostertagia and Trichostrongylus species. McCulloch[5] reported that the addition of molasses to a feed preparation containing phenothiazine enhanced its palatability for sheep and that by incorporating in a feed pellet 15 per cent phenothiazine and 10 per cent molasses, a practical and efficient method of administering the drug was obtained. Each pound of feed pellets contained 68 Gm. of phenothiazine.



Fig. 1—Lambs before segregation into lots and treatment with phenothiazine. The ground was covered with a layer of cinders.

The advantages claimed for various preparations of phenothiazine have prompted numerous inquiries of the Illinois Agricultural Experiment Station on the most practical and efficient method of administration. The experiment reported here was an attempt to evaluate the anthelmintic efficiency of phenothiazine when prepared for administration in various ways.

Five preparations of phenothiazine, (1) capsule, (2) bolus, (3) commercial aqueous colloidal suspension, (4) water-molasses suspension, and (5) soybean feed pellets containing phenothiazine, were compared on the basis of post-treatment reduction of parasitic ova in the feces as determined by periodic fecal examinations of treated and control lambs, together with hemoglobin determinations, gain in weight, and clinical appearance of the lambs during the experimental period.

PROCEDURE AND RESULTS

Sixty wormy lambs purchased on the open market were divided according to weight and clinical condition into approximately uniform lots of 10 lambs each. The average weight of the lambs in each lot was 53.3 pounds. Each group was confined in cinder drylot with access to a three-sided shelter. All lots were fed a basal ration of clover hay *ad libitum* and a corn and oats mixture with block salt. The control lot ate approximately the same amount of hay and concentrates as the treated lambs. The experiment started Nov. 15, 1942, and terminated Jan. 4, 1943. At no time during the trial were climatic conditions considered favorable to the development of parasitic larvae on the ground (fig. 1).

The gastrointestinal tracts from 5 lambs of low vitality that died before the experiment was begun were carefully examined

[10]Britton, J. W., Miller, R. F. and Cameron, H. S.: Control of Parasitism in Sheep. Cornell Vet., *32*, (1942): 400-406.

for the presence of parasites. The following parasites were identified: *Haemonchus contortus* in 2 lambs; *Ostertagia circumcincta* in 2 lambs; *Oesophagostomum columbianum* in 4 lambs; *Cooperia curticii* in 3 lambs; *Nematodirus filicollis* in 2 lambs; *Strongyloides papillosus* in 2 lambs; and *Trichostrongylus instabilis* and *Trichuris ovis* in 3 lambs.

TREATMENT

Nine days after segregation into lots of 10 lambs each, the following treatments were administered:

Lot 1.—Each lamb received a single dose of 15 Gm. of powdered commercial phenothiazine in a gelatine capsule. The dose of 15 Gm. is that recommended by the seventh edition of the National Formularly for lambs weighing up to 60 lb.

Lot 2.—Each lamb received in a single dose 12.5 Gm. of phenothiazine in the form of a bolus, the dose recommended by the manufacturer of this product for lambs weighing up to 60 lb.*

Lot 3.—Each lamb received in a single dose as a drench 1 fluid ounce of a commercial aqueous colloidal suspension of phenothiazine containing 12 Gm. of phenothiazine per ounce. The dose of 1 fluid ounce is that recommended by the manufacturer for lambs.†

Lot 4.—Each lamb received in a single dose as a drench 2 fluid ounces of a water-molasses (blackstrap) suspension containing 15 Gm. of phenothiazine per dose. The water and molasses were of equal proportion, as recommended by the Zoölogical Division of the Bureau of Animal Industry.

Lot 5.—This lot of lambs was fed soybean feed pellets‡ containing phenothiazine. Twenty-six to 27 Gm. of phenothiazine were incorporated in pellets consisting of 5 per cent mineral, 6 per cent molasses, and 89 per cent soybean-oil meal. Five pounds of pellets were fed, allowing one-half pound of pellets per head, or approximately 13.5 Gm. of phenothiazine per lamb. Individual pellets measured 5/8 by 3/4 inches. The pellets were eaten more readily when broken into smaller pieces.

Lot 6.—This lot was held as untreated controls.

FECAL EXAMINATION

Pretreatment fecal examinations for measuring parasitic infestation were conducted seven days preceding, as well as on the last day before, treatment. Post-treatment fecal examinations were conducted on the seventh, fourteenth, and twenty-fifth days. The degree of parasitism was estimated by the average number of parasitic ova occurring per Gm. of feces as determined by a modification of Stoll's[11] technique. A fecal specimen was collected in a glass shell vial from the rectum of each sheep. Two grams of the sample were promptly suspended in 30 cc. of 0.1 N sodium hydroxide. The mixed samples were held at-icebox temperature for twelve hours; then 0.15 cc. was placed on a microscope slide, covered with a 22 by 40 mm. coverslip, and the ova present were counted with the low-power objective. Three counts were made on each sample, the average multiplied by the factor 100 and recorded as the number of parasitic ova per Gm. of feces.

TABLE 1—Phenothiazine for Lambs: Pretreatment and Post-Treatment Fecal Examinations Showing Average per cent Reduction of Strongylid Ova and Average Weight Gain During the Experimental Period

Lot No.	Phenothiazine (Method of Administration)	Dose (Gm.)	Pretreatment* Average Ova per Gm. Feces	Post-treatment* Average Ova per Gm. Feces	Reduction (%)	Average Total Gain (lb.)	Average Daily Gain (lb.)
1	Capsule	15 Gm.	1277	131	89.7	10	0.24
2	Bolus	12.5 Gm.	947	167	83.4	15	0.36
3	Aqueous suspension	12 Gm.	1577	225	85.6	9	0.21
4	Molasses suspension	15 Gm.	1040	137	86.8	15	0.36
5	Feed pellets	13 Gm.	1751	78	95.6	10	0.24
6	Control		1138	987	13.3	5	0.12

* = Strongylid ova counted.

*The American Chemical Company, Chicago, Ill., supplied phenothiazine boluses known as "Phenobole."

†Jensen-Salsbery Laboratories, Inc., Kansas City, Mo., supplied an aqueous suspension of phenothiazine known as "Phenite," together with funds for the purchase of experimental lambs.

‡E. A. Staley Manufacturing Company, Decatur, Ill., processed the soybean phenothiazine pellets.

[11]Stoll, N. R.: Investigations on the Control of Hookworm Disease. XV. An Effective Method of Counting Hookworm Eggs in Feces. Am. J. Hyg., 3, (1923): 58.

Because of their morphological similarity, the ova of Haemonchus spp., Oesophogostomum spp., Cooperia spp., Trichostrongylus spp., and Ostertagia spp. were not differentiated and were collectively grouped under the heading of "Strongylid ova." The term "Strongylid" in this discussion includes the above-mentioned parasites. The ova of Nematodirus spp., Strongyloides spp., and Trichuris spp. were differentiated in the records.

The data obtained from fecal examinations of individual sheep in each of the lots are summarized in table 1. In the treated lots, a post-treatment decrease in the numbers of Strongylid ova was observed. There was no significant difference in the per cent reduction of Strongylid ova in the 5 treated lots, which showed an average of 88.3 per cent reduction as against 13.3 per cent reduction of Strongylid ova for the control lambs. The 13.3 per cent reduction of Strongylid ova in the control sheep possibly may be explained by Whitlock, Callaway and Jeppesen's[12] observations that by improving the diet of sheep a spontaneous reduction in the number of parasites might be expected. There was a tendency for the numbers of Strongylid ova occurring in the feces to increase slightly on the second and third post-treatment examination on the sixteenth and twenty-third days, respectively, over the first post-treatment examination, *i.e.*, seven days after treatment. This increase might have been due in part to two factors: (1) The lambs were kept in drylot only fourteen days before treatment, and the increase of ova in the latter part of the period of thirty-four days may have been the result of larvae forms completing their migration and maturing after treatment; (2) the phenothiazine may have produced a sublethal effect on the surviving parasites in the intestinal tract, interfering for a time with egg production. Under conditions of the experiment, reinfestation is not definitely excluded as a factor in the treated animals. It is obvious that there was a distinct difference between the pretreatment and the post-treatment numbers of Strongylid ova, and this is verified by the analysis of variance. There was an extreme variation within each group which tends to

TABLE 2—Phenothiazine for Lambs: Pretreatment, Post-Treatment and Autopsy Results*

Lot No.	Lamb No.	Treatment: 12-4-42 Phenothiazine.	Gm.	Pretreatment† Stoll Counts 11-25-42	12-1-42	Post-Treatment† Stoll Counts 12-12-42	12-18-42	12-29-42	Autopsy Jan. 4, 1943 Haemonchus	Oesophagostomum
1	2608	Capsule	15.0	2000	1900	0	0	200	15	7
	2611			400	500	0	0	0	0	0
2	2621	Bolus	12:5	350	300	100	50	500	0	13
	2671			1350	1300	250	100	150	6	7
3	2630	Aqueous	12.0	2200	900	250	2250	150	4	69
	2667	suspension		120	1250	150	350	300	2	9
4	2638	Molasses	15.0	600	450	350	200	150	0	2
	2666	suspension		1200	900	0	100	50	0	24
5	2654	Feed pellets	13.0	150	100	0	100	150	0	6
	2675			3300	3150	0	100	150	2	0
6	2661	Control	0.	250	1050	750	200	200	112	6
	2663			100	250	200	600	350	8	1

*Stoll count on feces; larval count at autopsy.
†Strongylid ova counted.

TABLE 3—Phenothiazine for Lambs: Daily Variation in Blood Iron and Hemoglobin Levels of Lambs

Sheep No.	Day of Determination 1 Fe*	1 Hb†	2 Fe	2 Hb	3 Fe	3 Hb	4 Fe	4 Hb	5 Fe	5 Hb	Average for 5 days Fe	Average for 5 days Hb	Average daily deviation from mean of Hb levels during the 5 days
1—(2656)	43.4	12.67	38.8	11.43	40.4	11.92	42.4	12.52	37.4	11.04	40.48	11.91	± 0.54
2—(2657)	38.8	11.43	38.0	11.20	34.2	10.06	35.6	10.50	33.0	9.74	35.92	10.58	± 0.58
3—(2660)	38.8	11.43	39.6	11.66	39.4	11.63	38.2	11.27	...	...	39.00	11.49	± 0.14
4—(2665)	40.8	12.02	42.0	12.38	39.4	11.63	36.6	10.78	37.2	10.98	39.20	11.55	± 0.54
5—(2662)	24.8	7.32	26.0	7.66	23.6	6.97	23.6	6.97	25.6	7.56	24.72	7.29	± 0.26
Average											35.86	10.56	± 0.41

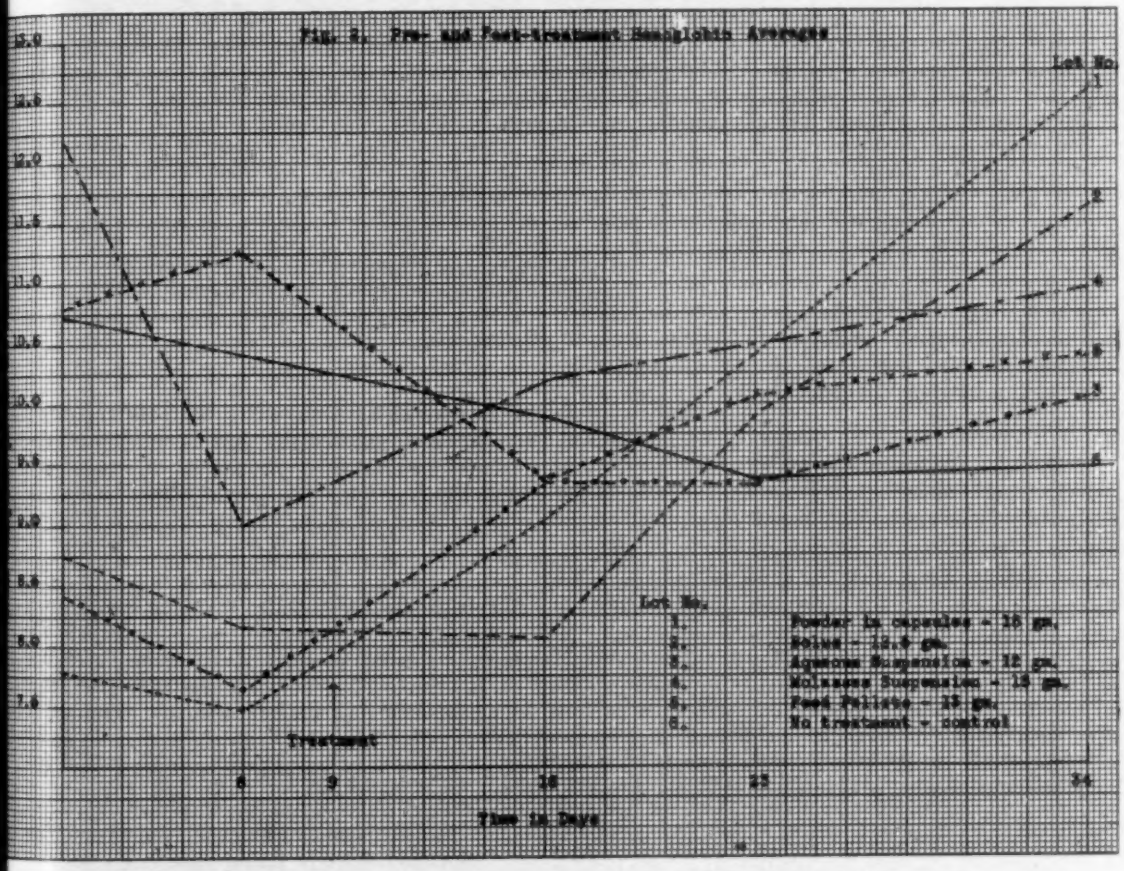
*Iron in mg. per 100 cc. whole blood. †Hemoglobin in Gm. per 100 cc. whole blood.

[12]Whitlock, J. H., Calloway, A. P. and Jeppesen, Q. E.: The Relationship of Diet to the Development of Haemonchosis in Sheep. J.A.V.M.A., *102*, (1943): 34-35.

obliterate any difference between the various lots.

Boley, Levine, Wright and Graham,[8] reporting on studies with sheep, and Porter[13] with cattle, found that phenothiazine had no appreciable effect on the number of Nematodirus ova occurring in the feces. Other workers (Swales,[3] and Kauzal[14]) have reported therapeutic doses to be highly effective in removing Nematodirus. In the experiment reported here, only a few lambs (12 of the treated group and 3 controls) showed an infestation with this parasite. The average reduction of ova occurring in the feces in the 12 treated animals was 79.4 per cent, as against 80.1 per cent for the control group. Since these data are based on a very small number of experimental and control animals, no conclusions are warranted. The numbers of Strongyloides and Trichuris ova were not influenced by treatment in any form.

Thirty-one days after treatment, 2 sheep from each experimental lot and the control group were slaughtered and their gastrointestinal tracts examined for the presence of Haemonchus and Oesophagostomum spp. The results are recorded in table 2. Since Strongylids whose eggs were counted along with those of Haemonchus and Oesophagostomum were disregarded, only a generalized observation may be reported that the treated lambs showed fewer parasites at autopsy than might have been expected from a comparison of the pretreatment egg counts in contrast with the control group.



[13]Porter, D. A.: Further Tests with Unconditioned Phenothiazine as an Anthelmintic in Cattle. Proc. Helminth. Soc., *8*, (1941): 38-44.

[14]Kausal, G. P.: The Efficiency of Phenothiazine Against Nematodirus spp. in Sheep. J. Coun. Sci. and Indus. Res. (Australia), *14*, (1941): 301-303.

HEMOGLOBIN

Blood samples were obtained from each lamb at the time fecal specimens were collected. Three cc. of blood were drawn from

the jugular vein into vials containing 0.01 Gm. of potassium oxalate. The hemoglobin content was calculated in Gm. per 100 cc. of whole blood from the iron content of the blood, as determined by the Wong[15] method. The readings were made with a Klett-Summerson photoelectric colorimeter.

The average hemoglobin levels per lot of lambs increased in the post-treatment period over the pretreatment levels in lots 1, 2, and 3, while in lots 4 and 5, as well as the control lot, the hemoglobin levels were lower in the post-treatment period (fig. 2). To check the daily variation of hemoglobin in sheep, 5 lambs not on experiment were bled on five consecutive days and the hemoglobin values determined (table 3). In 3 lambs, fluctuations of 1.60 to 1.69 Gm. of hemoglobin per 100 cc. of blood occurred during the five-day period. This observation and the relatively high hemoglobin values found at the beginning of the trial probably account for the irregular findings obtained while the lambs were on experiment. A uniform rise in the hemoglobin content probably would have occurred in all 5 of the treated lots of lambs if the hemoglobin values had been below normal when the experiment was started.

WEIGHT GAIN

Each lot of lambs was weighed seven days before treatment and twenty-eight days after treatment. The average gain in weight of the 5 lots of lambs treated with phenothiazine over a period of thirty-six days was appreciably higher than that of the untreated group. In the treated lots, the lambs showed an average daily rate of gain of 0.28 lb. as compared to 0.12 lb. for the control lambs. Lambs in lot 2 treated with boluses and lot 4 treated with a water-molasses suspension showed the higher rate of gain; yet, in view of possible individual variation, the conclusion that one preparation of phenothiazine was more effective than another is not warranted by the results obtained under the conditions of the experiment (table 1).

SUMMARY

Observations on the pre- and post-treatment occurrence of ova in the feces, the fluctuation in hemoglobin levels, autopsy findings and the average gain in weight of lambs treated with various preparations of phenothiazine are reported. No significant difference between the treated groups was observed. Haemonchus spp. and Oesophagostomum spp. infestations were lowered, while Strongyloides, Trichuris and Nematodirus were not appreciably affected. Further evidence that phenothiazine is beneficial in the treatment of lambs infested with internal parasites was shown by more rapid gain in weight and general improvement in health of treated lambs as contrasted with untreated lambs. It was demonstrated that phenothiazine can be successfully administered to sheep when incorporated in a pellet made from soybean-oil meal.

ACKNOWLEDGMENT

The authors gratefully acknowledge the assistance of Miss Vera Hanawalt, Mr. Morris T. Jones, Mrs. V. S. Smith and Mr. Raymond Hamilton in the hemotological and parasitological examinations in this study. The authors are also indebted to Mr. H. W. Bean, who subjected the data to statistical analysis.

[15]Wong, S. Y.: Colorimetric Determination of Iron and Hemoglobin in Blood. III. J. Biol. Chem., 73, (1928): 409-412.

Poultry and Eggs Not Rationed

In 1942, the yearly loss of adult poultry from disease was estimated to be $285,000,000 by the National Poultry Advisory Council, whereupon the Poultry Conservation for Victory program was set up to stop the leakage. Allied Mills loaned Dr. Cliff Carpenter to the Bureau of Animal Industry to direct the project. The blue print of the program was outlined to stop faulty management, hit-or-miss feeding, and shiftless disease-control measures. The effort was not without favorable results. Poultry and eggs are plentiful and prices reasonable.

"No hog which is or has been affected with, or which has been exposed to, hog cholera shall be permitted to run at large, or come in contact with any hog which is not so affected," is the preamble around which the hog-cholera regulations of Canada are written.

For the first time since Napoleon, scabies has become a scourge among the people of France. Cause: no soap.

SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

The Treatment of Vaginitis in Cows Pre- and Postconception with Compound Silver Picrate Powder

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Hanapepe, Kauai, T. H.

THE FARMER'S interest in specific or nonspecific vaginitis in the cow is more or less centered about its economic importance, treatment of the condition being of little value *per se* but of tremendous value as an aid to breeding.

Granular vaginitis of cattle is a specific, contagious inflammation of the vulval and the vaginal mucous membrane in cows and heifers, believed to be due to *Streptococcus vaginitidis*[1] and frequently affecting as many as 80 per cent of a herd. Although it does not seriously endanger the life of the animal, the disease may cause sterility, especially among heifers, and it is reported that from 50 to 70 per cent of infected cows or heifers become sterile from this cause. The disease may be transmitted to the cow by

TABLE I—Representative Cases of Vaginitis Treated with Silver Picrate (Part I)

Cow No.	Type of Cow	Age	Diagnostic Findings: Vagina	Cervix	Uterus	Dates of Treatment	Conception	No. of Previous Offspring	No. of Times Bred Previous to Treatment
1	G.G	6 yr.	Moderate inflammation	Normal	Slightly inflamed	8/14/41 8/17/41 8/20/41	Next heat	4	0
2	G.G.	3 yr.	Slight inflammation	Normal	Normal	8/14/41 8/17/41 8/20/41	Two months later	1	3
3	G.G.	5 yr.	Slight inflammation	Inflamed; probable cause of sterility	Normal	8/14/41[1] 8/17/41 8/20/41	In two months	3	5
4	G.G.	2 yr.	Severe inflammation	Normal	Normal	10/24/41 10/27/41 10/30/41	Settled and conceived[2]	0	2
5	G.G.	5 yr.	Slightly inflamed	Severe inflammation and protrusion	Slightly inflamed	10/24/41[3] 10/27/41 10/30/41	Two heats later	3	0
6	R.G.	2 yr.	Severe inflammation	Normal	Normal	11/ 2/41 11/ 6/41 11/ 9/41	Two months later	0	0
7	R.G.	2 yr.	Severe inflammation	Normal	Normal	11/ 2/41 11/ 6/41 11/ 9/41	Two months later	0	0

R.G. = Registered Guernsey. G.G. = Grade Guernsey.
[1]Painted os uteri with tr. iodine on 8/14/41.
[2]Bred 10/6/41. Probably in calf. Treatment given to prevent abortion.
[3]Retained placenta and mild cotyledonitis 9/24/41. Os treated with tr. iodine 10/24/41 and 10/27/41. Os normal 10/30/41.

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[1]Craig, J. F.: Fleming's Veterinary Obstetrics, 4th ed. Bailliere, Tindall, and Cox, London, 1930.

the infected sheath of the bull or by contaminated utensils, fodder, or soiled litter coming in contact with the vulva of the healthy cow. In young females, artificial inoculation of the vagina produces the disease, with an incubation period of three to five or six days. Macroscopically, the lesions produced show the mucosa studded with tiny, dark red nodules which bleed easily if rubbed. These nodules are most prominent upon the clitoris where they occur in groups. A mild, catarrhal inflammation and a slight fever may be present, accompanied by a loss of milk. The animal

TABLE I—Representative Cases of Vaginitis Treated with Silver Picrate (Part 2)

Cow No.	Type of Cow	Age	Diagnostic Findings: Vagina	Cervix	Uterus	Dates of Treatments	Conception	No. of Previous Offspring	No. of Times Bred Previous to Treatment
8	R.G.	2 yr.	Slightly inflamed	Normal	Normal	11/ 2/41	Passed heat on 11/4/41. Considered settled	0	1
9	R.G.	2 yr.	Severe inflammation	Normal	Normal	11/ 2/41 11/ 6/41 11/ 9/41	Two months later	0	0
10	R.G.	2 yr.	Severe inflammation	Normal	Normal	11/ 2/41 11/ 6/41 11/ 9/41	Condition unchanged after treatment. No conception two mos. later	0	0
11	R.G.	2 yr.	Severe inflammation	Normal	Normal	11/ 2/41 11/ 6/41 11/ 9/41	Two months later	0	0
12	R.J.	3 yr.	Slight inflammation	Normal	Normal	9/ 9/41	Bred 10/15/41 and conceived	1	2
13	R.H-F.	19 mo.	Slightly inflamed	Normal	Normal	11/ 7/41 11/10/41 11/14/41	Bred 12/1/41 and conceived	0	0
14	R.H.F.	18 mo.	Marked inflammation	Slightly Inflamed	Normal	11/ 7/41[4] 11/10/41 11/14/41	Bred 11/23/41 and conceived	0	0
15	R.H-F.	6 yr.	Very slight inflammation	Severe inflammation	Enlarged and inflamed	11/ 7/41 11/10/41 11/14/41	Bred 11/27/41. No conception[5]	4	4
16	G.G.	4 yr.	Marked inflammation	Normal	Normal	11/12/41 11/15/41 11/19/41	No conception	2	3
17	G.G.	3 yr.	Marked inflammation	Normal	Normal	11/12/41 11/15/41 11/19/41	No conception	1	3
18	R.G.	5 yr.	Marked inflammation	Normal	Normal	11/12/41 11/15/41	Two months later	3	4
19	R.G.	22 mo.	Slight inflammation	Normal	Normal	11/12/41	Examined and appeared normal 11/15/41. Conceived next heat	0	7
20	R.H-F.	5 yr.	Slight inflammation	Marked inflammation	Normal	11/17/41[6] 11/20/41 11/23/41	Next heat	3	2
21	R.H-F.	3 yr.	Slight inflammation	Normal	Normal	11/17/41 11/20/41 11/23/41	No conception	1	1

R.G. = Registered Guernsey. G.G. = Grade Guernsey. R.J. = Registered Jersey. R.H-F. = Registered Holstein-Friesian. G.H-F. = Grade Holstein-Friesian.

[4]Tr. iodine applied on cervical os 11/7/41. [5]Sterility probably due to cervicitis and slight metritis. [6]Iodine swab on cervix, 11/17/41.

remains affected in this manner for a period of a month or more. The symptoms then subside, and the nodules become pale and remain for three or four months longer. Microscopically, there appears to be hyperplasia of the mucosa. In the bull, the penis occasionally becomes affected with nodules similar to those of the vulval mucous membrane. This is accompanied by a discharge from the prepuce and bleeding on erection and copulation.[1,2]

In the present investigation, over 500 cows suffering from granular or trichomonas vaginitis were treated with silver picrate. Details of 28 representative cases are given in table 1, parts 1 to 3.

Silver picrate has been used for some years in the treatment of human vaginitis[3] and urethritis.[4] Its veterinary use in granular vaginitis has been reported by Brown.[5]

It has been found to be toxic in low concentration to *Trichomonas vaginalis*.[6] We have used it by insufflation in the form of compound silver picrate powder,* which consists of a 1 per cent dispersion of silver picrate in kaolin. Five Gm. of this preparation were insufflated into the vagina every other day for a maximum of 3 treatments. The insufflation was performed by means of the instrument used in the treatment of human vaginitis, the Shelanski insufflator.* Reduction of inflammation of the vagina and cervix resulted immediately, but more important was the success with which the treated cows were bred. Those that had been bred as many as five times without conceiving settled within two months after treatment. Young heifers responded to the treatment much more quickly than older cows. This is significant since the disease is more acute in young heifers. It must be borne in mind, however, that vaginitis is but one of the factors that will inhibit conception. In the table of typical examples of the cows treated, all other factors have been checked and found to be normal. It is in such selected cases that the insuffla-

TABLE 1—Representative Cases of Vaginitis Treated with Silver Picrate (Part 3)

Cow No.	Type of Cow	Age	Diagnosis Findings: Vagina	Cervix	Uterus	Dates of Treatments	Conception	No. of Previous Offspring	No. of Times Bred Previous to Treatment
22	G.H-F.	7 yr.	Marked inflammation	Normal	Normal	11/17/41 11/20/41 11/23/41	Next heat	5	2
23	G.H-F.	5 yr.	Slight inflammation	Normal	Normal	11/23/41	In calf 12/27/41	3	2
24	R.H-F.	6 yr.	Slight inflammation	Normal	Normal	11/23/41	In calf 12/27/41	4	2
25	G.G.	4 yr.	Inflamed	Normal	Normal	9/16/41	In calf 12/23/41	2	5
26	G.G.	20 mo.	Inflamed	Normal	Normal	9/16/41	In calf 12/23/41	0	5
27	G.G.	3 yr.	Inflamed	Normal	Normal	9/16/41	In calf 12/23/41	1	6
28	R.J.	5 yr.	Slight inflammation	Normal	Normal	9/ 9/41	In calf 10/15/41	3	3

G.H-F. = Grade Holstein-Friesian. R.H-F. = Registered Holstein-Friesian. G.G. = Grade Guernsey. R.J. = Registered Jersey.

[1]Runnells, R. A.: Animal Pathology. Iowa State College Press, Ames, Iowa, 1941.

[2]Corbitt, J. D., Jr., McElroy, R., and Clark, J. H.: Use of Silver Picrate in the Treatment of Vaginitis: A Five Year Study. J.A.M.A., *117*, (Nov. 22, 1941): 1764-1766.

[3]Knight F., and Shelanski, H. A.: Treatment of Acute Anterior Urethritis with Silver Picrate. Am. J. Syph., Gon. and Vener. Dis., *23*, (March, 1939): 201-206.

[4]Brown, R. L.: Silver Picrate in the Treatment of Granular Vaginitis in Cattle. North Am. Vet., *23*, (1942): 247-249.

[5]Shelanski, H. A.: Studies on T. Vaginalis in Vitro. J. Lab. and Clin. Med., *21*, (May, 1936): 790-793.

*Supplied by John Wyeth and Brother, Inc., Philadelphia, Pa.

tion of compound silver picrate powder proved most valuable, some cows requiring but 1 insufflation before breeding to insure conception. In some cases where the cows seemed to abort during the first month, a course of insufflations of silver picrate powder apparently maintained pregnancy. No untoward effects have been observed in any case. The treatment is without pain and does not require douching.

In table I, details are given of 28 case histories, representative of more than 500 cows treated with compound silver picrate powder. The diagnostic findings in the vagina varied from a slight to a marked and severe inflammation. The cervical lesions ranged from normal to severe inflammation and protrusion, and the condition of the uterus varied from normal to enlarged and inflamed. In 19 of the cases listed, three treatments with compound silver picrate powder were necessary, whereas 9 cases required but 1 treatment. The cows in this group were settled in the period ranging from the next heat to two months later. In 5 cases, conception did not take place even after two months. Previous offspring of these cattle ranged in number from none to 5. The number of times each cow was bred previous to treatment varied from none to 7.

CONCLUSIONS

1) Vaginitis in the cow may be a cause of sterility.

2) Compound silver picrate powder alleviates vaginitis and inflammation of the vagina and cervix sufficiently to allow conception.

3) Throwing off the product of conception may be due to vaginitis. This may be controlled by treatment with compound silver picrate powder after breeding.

4) Vaginitis may be spread among herds by the use of a common bull.

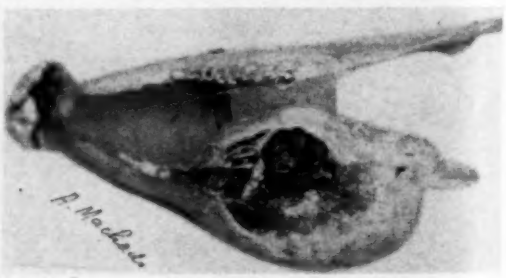
5) All other known factors causing sterility must be ruled out before considering vaginitis the causative agent.

Talcum Manifestly Harmful in Surgery

The use of talcum as a dusting powder for rubber gloves is a very serious surgical hazard, for, when talcum (=hydrous magnesium silicate) gains entrance to the animal organism it sets up a productive inflammation that is permanent, progressive, and provocative of grave complications. Ample evidence to that effect has been demonstrated regardless of meticulous care in washing off the powder before operating. In intra-abdominal operations, talcum powder is positively a dangerous drug. It causes intraperitoneal adhesions and granulomas within ten days. In view of the wide use of talcum in veterinary practice not only on surgical gloves but also as a vehicle for many of the popular dusting powders for wounds, the report of Seelig, Verda, and Kidd (*J.A.M.A.*, Dec. 11, 1943, pp. 920-924) comes as an astonishing revelation to say the least. "Don't use it" seems to be the right thing to say.

Odontoma in a Young Zebu

The authors report a case of tumor of the mandible in a zebu *(Bos indicus)*, 20 months old. The growth was located at the level of the second and third molars which were absent, and extended backward to the angle



Soft Odontoma of the Mandible in a Zebu; Antero-Posterior Face.

of the jaw. Its dimensions were 28 by 18 by 14 cm. On section, the tumor was solid, white, and bloody. Except the part in the oral cavity, the tumor was encapsulated. Outside of the fibrous capsule was the thin, bony plate of the affected bone. The substance consisted of squamous, proliferating strands of epithelium, in various stages of differentiation of enamel, interspersed with abundant connective stroma. Around most of the enamel organs, there was a thin, cementum-like, uncalcified, osteoid tissue. The authors classified the growth as a soft odontoma of transition between admantinoma and multidentigerous, proliferating odontoma.—*N. M. Rangel, A. V. Machado and L. M. Wilwerth: Sobre un Caso de Odontoma Mole de Transiçao em Bovino. Separata da Revista "Ceres" (Brazil), July-October, 1942.*

CLINICAL DATA

Biotin, member of the B group, is now made synthetically and, therefore, is more amply available for use in nutrition.

There are not less than 3,000,000 deaths from malaria and at least 300,000,000 cases each year throughout the world.—*J.A.M.A., Oct. 30, 1943.*

A process of recovering protein from wheat used for making alcohol promises to add billions of pounds to livestock feedstuffs. This discovery, together with the new process of extracting concentrated protein from grasses by chemical action, is announced as a notable wartime achievement in meat-food production.

If you practice in the Goiter Belt, meaning the Great Lakes region and parts west, remember your iodine supplement in the feeding of farm animals.

Not being a rationed product, mineral oil is used extensively in salad dressings. Mineral oil is dubbed harmful because it is known to prevent absorption of carotene.

As a rule, animals clinically stricken with intestinal worms require more than just anthelmintics. Heavy worm infections may have predisposing causes that worm remedies do not remove.

Since enriched white bread and flour became available in New York City but one-fourth as many cases of full bloom beriberi and one-third as many pellagra patients were noted in Bellevue Hospital.—*Medical Times.*

In a study of the relation of longevity and fertility of bull semen, Margolin, Bartlett, and Lepard, of the New Jersey Agricultural Experiment Station showed that there was but slight difference between the conceptive power of one-day-old semen and fresh semen.—*Journal of Dairy Science, Nov. 1943.*

Vitamin B_2 (riboflavin), first isolated from sour milk, is present in soil, in certain yeasts, and in brewers' wastes.

"Soil Needs More Livestock" is the headline of a short paragraph in the *Veterinary Record.* What a truth!

"Systematic denial of vitamins" is reported from Germany as a cure for a number of dangerous blood diseases.—*From J.A.M.A., Oct. 30, 1943.*

Inasmuch as sulfa drugs prevent intestinal bacteria from producing thiamin, it is recommended that thiamin be given to patients under sulfa drug treatment.

In 12,000 postmortem examinations of human diaphragms, conducted on a nationwide scale, 16 per cent were positive for *Trichinella spiralis.* Cause: garbage feeding of hogs.—*Public Health Reports, Aug. 27, 1943.*

Particles no larger than 1/100,000 of an inch, like the tail or head of a germ, are visible under the new electron microanalyzer developed at the laboratories of the RCA at Princeton.—*From Science.*

Phenothiazine in salt given as a salt lick is a practical and useful way to dose worm-infected sheep, but is not effective in cattle, according to Britton, Miller, and Cameron, University of California, in *Cornell Veterinarian.*

Cultures of *Bacillus pestis,* causal organism of bubonic plague, stoppered tight without transfer for twenty years, were still pathogenic for guinea pigs when subcultured.—*Public Health Reports, Sept. 10, 1943.*

Treatment of Chronic Mastitis During the Dry Period

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LESS THAN five years ago, chronic mastitis, caused by *Streptococcus agalactiae*, was considered to be an incurable disease in this country. In recent years, however, studies by several investigators[1-10] have revealed that at least four agents, namely, acriflavine, silver oxide in oil, tyrothricin, and sulfanilamide in oil, have curative properties for *Str. agalactiae* infections when injected directly into the udder through the teat opening. By proper use of one or more of these agents, together with good herd management, the incidence of chronic mastitis can be markedly reduced.

Before treatment is introduced into a herd, it is necessary to initiate a program of routine testing of the milk of the individual cows for evidence of infection with *Str. agalactiae*. The milking sequence should then be organized in such a way that the infected animals will be milked last. Treatment of all the infected cows to be retained in the herd should be carried out irrespective of whether or not symptoms of mastitis have been observed in every case.

The writer has experienced variable and often discouraging results from efforts to remove *Str. agalactiae* from lactating udders by chemotherapy. Frequently, more than one treatment is necessary to effect a cure during lactation with any of the therapeutic agents now available. During the course of a treatment, and for several days thereafter, the secretion is unfit for use and must be discarded, which is wasteful of both milk and labor. Lactating udders, requiring repeated treatments to bring about a cure, often manifest a drop in production which is not regained during the remainder of the milking period. Infrequently, instead of producing a cure, the infection becomes aggravated by the injections and an acute inflammatory process develops which stubbornly resists further treatment. Taking these facts into consideration, it seemed advisable to study the efficacy of chemotherapy for mastitis, administered during the dry period. It is the purpose of this paper to present the results of such an investigation made in a large dairy herd.

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DESCRIPTION OF THE HERD

It consisted of about 300 mature cows, between 220 and 240 of which were kept in lactation. They were milked by machine and stripped afterwards. Between milking periods, the cows were held in one large and two small, hard-surfaced corrals. It was not possible to segregate them on the basis of mastitis infection while in the corrals, but at milking time they were placed in the stanchions in a definite order so that the noninfected and cured cows would be milked first.

The mastitis-control program was started in October, 1941. Early in 1942, due to a labor shortage, the owner found it necessary to reduce the size of the herd. This was accomplished at first by selling a portion of the cows in late gestation or those recently fresh, and this resulted in the removal from the herd of a number of animals that had been recently treated. Finally in December, 1942, fourteen months after initiating the control work, the owner found labor conditions so serious that he dispersed the entire herd. This necessarily terminated the studies on mastitis and forced an analysis of the results at a time when but a few of the cows had completed a full lactation period following treatment.

METHODS

Testing for Mastitis.—The dairy was visited every two weeks throughout fourteen months. The udders to be worked on at each visit were washed free of dirt and then wiped with individual, clean cloths, soaked in a solution containing about 400 p.p.m. of available chlorine. A composite sample of udder contents was collected in a sterile vial from each cow and was kept iced or refrigerated until ready for study in the laboratory. The methods used to detect the presence of *Str. agalactiae* have been described in a previous publication.[11]

Cows, lactating at the time the project was started, were not tested for evidence of infection until each in turn arrived at the termination of its lactation period. It was necessary to neglect these cows in this way at first because the owner did not feel that it would be possible for him to reorganize the milking sequence of the entire herd at one time. It was decided, therefore, to start the mastitis-control work by testing the dry cows and treat-

ing all those found shedding *Str. agalactiae*, regardless of the stage of their dry period. Cows were not culled or eliminated from treatment because of indurations in their udders.

After freshening, the noninfected and the treated-cured cows were assigned to stanchions where they would be milked before the infected animals. Milk samples for bacteriological study were then taken from them every two weeks for the first six weeks of lactation, and bimonthly thereafter as long as they were available in the herd.

Therapeutic Agent and Method of Administration.—A 5 per cent dispersion of silver oxide in mineral oil (so-called colloidal silver oxide) was used. Two commercial brands of colloidal silver oxide were employed in the treatment of 154 cows, while 8 animals received a 5 per cent suspension of silver oxide in mineral oil prepared at the laboratory.*

A composite sample was drawn from the udder of each cow when it was dry or was being dried off and, if found infected with *Str. agalactiae*, the animal was treated on the next visit as follows: The udder was milked out as thoroughly as possible, the tip of each teat was rubbed with a pledget of cotton soaked in 70 per cent alcohol, and immediately thereafter the silver oxide in oil was injected by means of a sterile glass syringe and a teat canula. The silver oxide in oil was forced out of the teat into the ventral portion of the quarter by holding the end of the teat between the thumb and first finger of one hand and stroking upward with the thumb and fingers of the other hand. This is an important phase of administration of the treatment and must not be neglected, for, as will be indicated later, the silver oxide is irritating and it may injure the teat.

For the average sized dry udder, 10 cc. per quarter were injected. For very small udders, however, the dose was reduced to 5 cc. per quarter; but if a quarter contained a purulent exudate, the amount of silver oxide in oil was increased, as will be indicated later. Atrophied quarters and supernumerary teats that produced a small quantity of secretion were given from 1 to 10 cc., depending upon their capacity. It is important not to overlook the treatment of infected supernumerary teats as they may serve as a source of reinfection of cured quarters.

The silver oxide in oil was left in the udders and every two weeks after treatment, a composite udder sample was drawn to be tested for *Str. agalactiae*. Cows shedding this organism after treatment were injected again if they had not freshened in the meantime. Animals that remained dry for a long time after treatment were sampled bimonthly after they had passed three clean tests made biweekly during the first six weeks following injection of the therapeutic agent.

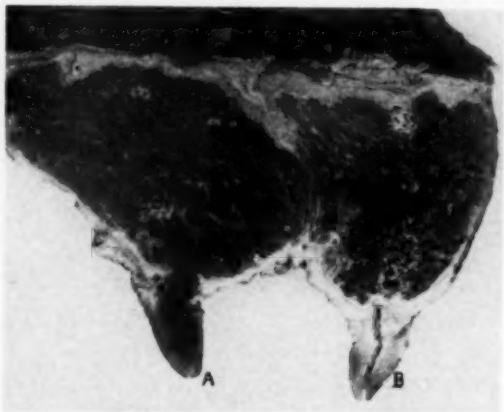


Fig. 1—Transverse section through the front quarters of a dry udder.

(A) This quarter was injected with 10cc. of silver oxide in oil on the day before slaughter. Note the dark-colored exudate in the teat and large ducts.

(B) This quarter was treated with 10cc. of silver oxide in oil four weeks prior to slaughter. An occlusion of the teat has developed from excessive scar formation resulting from chemical irritation.

RESULTS OF TREATMENTS ON *Str. Agalactiae* INFECTIONS

Three hundred and two mature cows were sampled of which 205 (67.8%) were shedding *Str. agalactiae*. A 5 per cent suspension of silver oxide in oil was injected into every quarter of 162 of the infected cows when they were dry. Fifty of the animals (30.8%) showed a purulent exudate in 69 quarters at the time of treatment and 10 of the quarters were distinctly swollen. As a

*Twenty-five Gm. of silver oxide, U.S.P., were ground for a few minutes in a sterile mortar and then warm liquid petrolatum (heavy), U.S.P., was slowly added while the grinding was continued. Sufficient petrolatum was used to give a final volume of 500 cc. This laboratory product has been used in another herd to a much greater extent and with satisfactory results. A subsequent paper will describe this work.

rule, quarters containing pus were given 12, 15, or 20 cc. of silver oxide in oil, depending upon their size, the degree of swelling, and the quantity of purulent exudate contained. This drug had a definitely retarding effect on the inflammatory process, for the pus and swelling disappeared from the majority of these quarters during the fortnight which elapsed between treatment and the next visit to the dairy.

TABLE 1

END OF LACTATION WHEN TREATED	NUMBER OF COWS TREATED	NUMBER OF COWS CURED	CURES (%)
1st	21	18	85.7
2nd	23	15	65.2
3rd	16	12	75.0
4th	28	17	60.7
5th and subsequent	35	20	57.1

Of the 162 cows treated in all quarters with silver oxide in oil, 123 calved again while they were available for study. Eighty-two, or 66.6 per cent, were completely free of infection with *Str. agalactiae*, and 76 (61.7%) were cured following one treatment. Forty-seven of the 123 cows were not cured by one injection of silver oxide in oil. Sixteen were then retreated and 6 were cured after a second or third injection. If all the animals not cured by one injection had been treated again, a higher percentage of total cures would probably have resulted. In many cases, however, the animals freshened before a second injection could be made, while, in other instances, the first results of bacteriological tests on the udder samples after treatment were misleading. With 28 of the 47 cows not cured by one treatment, *Str. agalactiae* was found in the udder samples on the first test made two weeks after treatment, but in 10 cows the samples were sterile, although *Str. agalactiae* was found again one month after the injection of silver oxide in oil and in 9 of the cows, dry from one to five months after treatment, this pathogen was not recovered during the remainder of the dry period but was present in the milk at freshening or shortly thereafter. While these latter cases may represent instances of reinfection, this is not thought to be the case. These results indicate that failure to recover *Str. agalactiae* from the dry udder after treatment with silver oxide in oil does not necessarily mean that a cure has been produced, especially if the test is made within the first fourteen days following the injection.

The percentage of cures, in relation to the number of lactation periods the cows had gone through before any treatment was given, is shown in table 1.

These data show a trend toward a greater number of cures being produced among the younger animals, which, in turn, represent the more recently acquired infections. A significant point, however, is that at least one-half of the older cows, many of which had indurations in their udders, were also cured.

The percentage of cures, in relation to the time interval between the injection of silver oxide in oil and freshening, is shown in table 2.

These results indicate that the time interval between treatment and freshening influences the chances of effecting a cure and that for best results, from thirty to sixty days should elapse between the injection of silver oxide in oil and calving. However, one should not hesitate to treat nearer to calving time if it has not been possible to administer the therapeutic agent earlier.

TABLE 2

NUMBER OF DAYS FROM TREATMENT TO FRESHENING	NUMBER OF COWS TREATED	NUMBER OF COWS CURED	CURES (%)
1-7	11	4	36.3
8-14	5	2	40.0
15-30	25	11	44.0
31-60	31	25	80.6
61-328	51	40	78.4

The use of silver oxide in oil during the dry period is not without danger of harmful effects. It is irritating to the mammary tissue as was manifested in several ways. The majority of the treated cows showed a variable degree of edema and soreness of the udder which lasted for several days. Twenty-three quarters became partially filled with a homogeneous, thick, gray pus which persisted for from three to six weeks after the injection. That this reaction was due to chemical irritation, rather than to a flare-up of a bacterial infection, was indicated by the fact that culture medi-

ums inoculated with the pus remained sterile in the case of 18 of the quarters and *Str. agalactiae* was not isolated subsequently from them. One of the most frequent manifestations of irritation was the appearance of blood in the udder contents. The degree of hemorrhage varied considerably, as indicated by the range in color of the udder contents from light brown or orange to a distinct blood-red. These expressions of chemical irritation were of a temporary nature and, therefore, were of little consequence. However, 3.8 per cent of the treated quarters received a more permanent injury, for their teats became partially to completely occluded by scar tissue (fig. 1). In nearly all cases, the formation of the occlusion was detectable by palpation as early as two weeks after injection of the silver oxide in oil, but with one cow, the development of a teat stricture attributable to chemical irritation was delayed until the third month of lactation, when the milker stated that one teat of the animal was becoming difficult to milk. Examination revealed a hard lump midway in the teat, and it soon became impossible to remove milk from this quarter. Ten months after the treatment with silver oxide, the animal was slaughtered and its udder obtained for study. It was found that a stricture had formed midway in the teat cistern and that the tissues surrounding the area were stained black from a deposit of silver. It was also noted that the parenchyma of all the quarters was an abnormal brown. The udders of 3 other treated animals have since been observed at slaughter, 1 of them a year after treatment. These also showed some browning of the parenchyma and two teats contained scattered foci of retained silver in the submucosa (fig. 2), while several of the quarters revealed similar foci in the submucosa of the gland cistern. These observations indicate that a portion of the silver oxide is retained in the mammary tissues for long periods of time. Andberg and Weirether[12] have reported similar observations.

EFFECT ON PRODUCTION

When organizing the mastitis work in this herd, an important aim was to obtain information on milk and butterfat production following the use of silver oxide in oil in the dry udder. This aim was partially defeated as a result of the dispersion of the herd before a large group of cows had finished a full lactation, following treatment. Only 10 cured cows had completed nine months of lactation when the work was terminated, but 31 cured and 22 animals not cured had completed as much as five months of lactation, following treatment. It is believed that a reliable indication of whether or not the secretory tissue was injured by the silver oxide in oil can be obtained by comparing the production of the first five months of the lactation period before treatment with a like period in the lactation after treatment. However, since the ability to produce is correlated with age, it is necessary to correct the yield before treatment to the age of the cow at freshening after treatment, in order that the production data before and after use of the silver oxide in oil will be on a comparable basis. For this purpose, the United States Department of Agriculture age-conversion factors[13] were used. The expected production after treatment was estimated by correcting to maturity (6 to 7 years) the yield of the first five months of lactation before the silver oxide treatment was given and dividing the result by the conversion factor for the age of the cow at the time of calving, after treatment.



Fig. 2—Exposed teat cistern of a quarter treated ten months before slaughter with 10 cc. of silver oxide in oil. The black spots are retained silver.

Any difference between the actual production after treatment and the estimated yield should then be due to some factor other than age. Since changes in feeding and management may influence milk yield, a group of cows with normal udders is included in the analysis to serve as a control on these two factors. A summary of the data on production is given in table 3.

Feeding and management practices apparently remained unchanged over the period of time that these production records were made. This is indicated by the finding that the mean milk and butterfat yields of the 12 normal cows were essentially the same for the first five months of each of the lactations here compared when correction for age was made. Therefore, it may be assumed that any gain or loss in production among the treated cows was not due to changes in feeding and management. The 22 cows which were not cured by the silver oxide in oil showed a slight drop in mean yield of both milk and butterfat, while the 31 cured animals showed a moderate increase in mean production of both milk and fat. These data are interpreted as indicating that the introduction of silver oxide in oil into the udder during the dry period did not, on an average, reduce the ability of the secretory tissue to produce.

TABLE 3—Comparison of the Mean Milk and Butterfat Yields of Cows During the First Five Months of the Lactations Before and After Silver Oxide in Oil Treatments Were Introduced into the Herd

No. of Cows	Classification of Cows	Actual mean production first 5 mo. of lactation before C* used		Actual mean production first 5 mo. of lactation after C* used		Expected mean production first 5 mo. of lactation after chemotherapy used[1]		Mean differences attributable either to changes in management or treatment	
		Milk (Lb.)	Fat (Lb.)	Milk (Lb.)	Fat (Lb.)	Milk (Lb.)	Fat (Lb.)	Milk (Lb.)	Fat (Lb.)
12[2]	Normal controls—not treated	5,270	233.0	5,607	249.2	5,623	247.2	— 16	+ 2.0
22[3]	Treated but not cured	6,098	217.9	5,817	210.9	6,199	222.4	—382	—11.5
31[4]	Treated and cured	5,581	207.8	6,191	233.3	5,662	211.0	+529	+22.3

*C = Chemotherapy.
[1]Based on age-corrected data. U.S.D.A. age-conversion factors used.
[2]Four cows in 1st, 3 cows in 2nd, 4 cows in 3rd and 1 cow in 5th lactation before chemotherapy.
[3]Two cows in 1st, 3 cows in 2nd, 3 cows in 3rd, 7 cows in 4th, 1 cow in 5th, 2 cows in 6th, 2 cows in 7th, 1 cow in 8th, 1 cow in 9th lactation before chemotherapy.
[4]Five cows in 1st, 2 cows in 2nd, 5 cows in 3rd, 6 cows in 4th, 5 cows in 5th, 5 cows in 6th, 1 cow in 8th, and 2 cows in 9th lactation before chemotherapy.

Discussion and Summary

Studies on chemotherapy for mastitis have been pursued continuously by the writer since early in 1939. The experience gained has led to the conclusion that it is not possible to predict from the clinical data on a case of mastitis whether or not a cure can be effected. While it is true that a greater number of cures will result from the treatment of recently acquired infections than from the treatment of long-standing cases of mastitis, yet many cures have been obtained among the latter type of udders. It seems logical, therefore, when chemotherapy is used in a herd, to give every infected cow that is capable of producing a satisfactory quantity of milk from all quarters a chance to respond to treatment. If this is done, many cows which might have been culled because of indurations in their udders will be saved for useful production in the future.

For efficient milk production, clinical cases of mastitis should be treated by udder injections as soon as symptoms appear. The aim should be to relieve the symptoms as quickly as possible so that usable milk will again be obtained from the affected quarters. Tyrothricin and sulfanilamide in oil are less irritating than silver oxide in oil and, therefore, are more suitable for use in the lactating udder. Frequently the visible symptoms of mastitis will disappear after one treatment, but often *Streptococcus agalactiae* is still present in the udder. If further injections are given in an attempt to completely remove the infection during lactation, the quarters in question are kept out of useful production for a variable period of time and it is not certain that subsequent treatments will effect a complete cure. It will be more in line with the pres-

ent war aim of increasing milk yield to use chemotherapy during lactation only to the extent of relieving the clinical symptoms of mastitis and deferring an attempt at complete removal of the infection until the dry period, when it is more vulnerable to chemotherapy.

A 5 per cent suspension of silver oxide in oil was found to be an efficient therapeutic agent for removal of *Str. agalactiae* from the dry udder. Of 123 cows that were treated in all quarters while dry, and which freshened again during the period of study, 76 animals (61.7%) were cured by a single injection. However, only 41.4 per cent of the cows treated between one and thirty days before calving were cured, while 80.6 per cent of those treated between thirty-one and sixty days before freshening were freed of *Str. agalactiae*. It is advisable, therefore, to treat cows as early as possible in the dry period. It seems desirable to plan a dry period of at least eight weeks duration so that sufficient time will be available to effect a cure. One month after silver oxide in oil has been introduced into an udder, a sample should be drawn for bacteriological examination and if *Str. agalactiae* is still present a second treatment should be given.

The injection of 5 per cent silver oxide in oil into a dry udder is not without danger for it was found that 3.8 per cent of the quarters so treated became nonfunctional following occlusion of the teat by scar tissue resulting from excessive irritation. However, a higher incidence of udder damage than this may result from an unrestricted spread of chronic mastitis in a herd.

The benefits derived from the use of silver oxide in oil during the dry period in a badly infected herd will far outweigh the losses incurred from irritation in isolated cases. However, before the treatment is introduced into a herd, the owner should be informed that from 3 to 4 per cent of the quarters may become nonfunctional and that, in isolated cases, a single cow may lose two and even three of her quarters. It is possible that the occurrence of teat strictures following the use of silver oxide can be overcome by injecting 10 cc. of mineral oil into each quarter after the therapeutic agent. This would help remove some of the silver oxide adhering to the teat wall so that it can be massaged up into the ventral portion of the quarter. This has been tried with 18 cows. The efficiency of the silver oxide in removing the infection was not lowered and no strictures developed. The number of animals is too small, however, for the results to be conclusive. It is also possible that, if the teats are stripped out once a day for several days following treatment, the irritation of the teat wall will be lessened and the occurrence of an occlusion prevented.

Observations on milk and butterfat yields indicate that the injection of 5 per cent silver oxide in oil into the dry udder did not, on an average, lower productivity.

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Pharmacy soared to a well-deserved level when the Ph.G.'s were granted commissions in the A.U.S., but it can take a tail spin if the drug store is made the center of veterinary quackery. In professional life, it is hard to soar and easy to slip.

Calfhood Vaccination Against Brucellosis

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SINCE THE start of calfhood vaccination against brucellosis in 1936, considerable data have been accumulated in Iowa, some of which are as follows:

Calves were vaccinated at between 4 and 8 months of age, and 4,011 were tested prior to vaccination. Forty-one (1.02%) were positive to the brucellosis test. Seven of the 41 positive animals were retested a month later and all were negative.

Of 930 from herds containing over 15 per cent reactors, 24 (2.58%) reacted. There were 2,143 from so-called problem herds under the routine test and slaughter plan, of which 13 (0.61%) were reactors. Out of 938 from herds that had very few or no reactors, 4 (0.43%) were reactors.

Of 8 calves tested from one to nine days after vaccination, 4 (50%) showed the presence of agglutinins; and of 28 calves tested from ten to nineteen days after vaccination, 26 (93%) were positive. Of 70 calves tested from twenty to twenty-nine days after vaccination, 64 (92%) were positive. Of 832 calves tested thirty to forty days after vaccination, 783 (94%) were positive. Sixty-three calves were tested from forty-one to fifty days after vaccination and 57 (91%) were positive. Of 57 calves tested from fifty-one to sixty days after vaccination, 31 (56%) were positive.

Some lots of vaccine (a "lot" indicates a quantity of vaccine issued under one serial number) caused the production of agglutinins in 100 per cent of the vaccinated, while other lots caused the production of agglutinins in only part of them. The percentage of calves vaccinated that were positive or suspicious varied from 100 per cent to 79 per cent of those vaccinated with various lots.

Nineteen calves that were vaccinated by several veterinarians were tested between thirty and forty days after vaccination. Of these, 13 (68%) were positive.

It is obvious that if calfhood vaccination is to produce immunity, such vaccination must cause some kind of a reaction, but it is not so certain that agglutinins need be produced. Agglutinins are more or less a by-product of infection and although they are immune bodies, yet they may have little to do with actual immunity. Thus, it is important to learn more of their significance and, especially, to learn whether or not they must appear in the blood stream before a good immunity is obtained. In an attempt to gain additional information on these questions, special attention has been given to animals that showed a negative post-vaccinal calfhood test. There have been 29 animals that gave negative tests fifteen to sixty-six days after vaccination that were retested eighteen or more months after vaccination; 8 (27%) were positive. The results of these tests were not materially different from the results of the tests conducted on the group as a whole.

The testing of animals vaccinated as calves, after the lapse of eighteen months, is practiced in herds that combine test and slaughter and calfhood vaccination to control brucellosis. Of 471 such animals tested, 55 (11.7%) were positive to the first test, but in 351 of the animals not positive to the first test, the retest showed 15 (4.2%) reactors. Two hundred and eighty of the animals not positive to the second test were retested and 15 (5.4%) were positive. Of 213 animals not positive to the third test, there were 11 (5.2%) positive on retest, and in 145 of the animals not positive to the fourth test, there were 6 (4.1%) positive. One large farming corporation that is practicing calfhood vaccination and the test and slaughter method, tested 368 animals that had been vaccinated as calves at least eighteen months previously. Seventeen (4.6%) were positive. One hundred and forty-eight of the animals, not positive to the first test, were retested and 11 (8.0%) were positive. Fifty of the animals, not positive to the first and second tests, were retested and 3 (6%) were positive.

Abstract of a thesis presented to the Department of Biology of Grinnell College, Grinnell, Iowa, in partial fulfillment of the requirements of the degree of Master of Arts.

From United States Department of Agriculture, Bureau of Animal Industry, Grinnell, Iowa.

It has been well established that very few vaccinated animals abort. However, an important percentage of vaccinated animals will react at eighteen or more months after vaccination. This is a serious problem where calfhood vaccination is employed in conjunction with the test and slaughter plan. It creates confusion in the minds of the owners who are attempting to control brucellosis and, at the same time, wish to make interstate shipments or exhibit at fairs. In addition, it is often difficult for cattlemen to dispose of vaccinated animals to owners of Bang's-disease-free herds, and to meet the requirements of city ordinances which specify that raw milk must come from cows negative to the brucellosis test.

Allowing more than eighteen months to elapse after vaccination did not materially reduce the percentage of reactors to the brucellosis test in the vaccinated animals.

Parturition did not appear to have any relationship to the reacting of vaccinated animals.

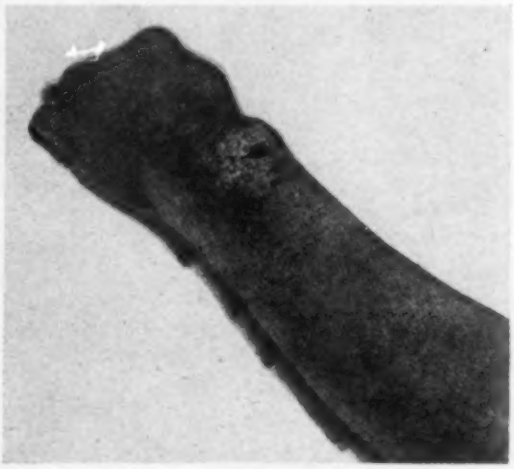
If the above findings are confirmed in further experiments, here and elsewhere, it will be necessary to evaluate a positive reaction to the brucellosis test in relation to history of previous vaccination: *i. e.*, we need further investigation of the duration and significance of the effects of vaccination.

Canine Distemper Virus in the Human Being

Morcos, of the Cairo Veterinary College (*Vet. J. London*, August 1943), in an article entitled "Distemper in Dogs," revives the almost forgotten experimental work of Nicolle in French North Africa (1931) which demonstrated that man may be one of the reservoirs of canine distemper virus. Inasmuch as no one seems to have attempted to refute or confirm Nicolle's findings, it is nevertheless a piece of research work worth bearing in mind in studying the epizoötiology of canine distemper. As Morcos reminds us, Nicolle inoculated a man, a donkey, and a pup with a specimen of canine distemper virus. Six days later, when he injected blood from the man into susceptible dogs, the result was the typical temperature curve of canine distemper through several passages, although the man had shown no signs of illness. The donkey was not affected and its blood was not virulent for dogs. Conclusion: Man is a carrier of canine distemper virus.

Salmonella Choleraesuis as a Cause of Indolent Subcutaneous Abscess (Human)

Salmonella choleraesuis, ubiquitous microbe of the hoglot, described by Salmon and Smith in 1885 as the probable cause of hog cholera and now recognized as a not infrequent cause of food poisoning in man, was found to be the specific factor in a human case of indolent subcutaneous abscess (*see*, figure) at the City of Detroit



—*Courtesy of the J.A.M.A.*

Subcutaneous abscess on the wrist in an aged Negro due to Salmonella choleraesuis infection.

Receiving Hospital.* The patient was an aged Negro laborer (retired) who had suffered periodically for forty years from flare ups of a severe contusion a few inches above the wrist. Cultures made from a biopsy specimen revealed the presence of a gram-negative bacillus, identified as *S.choleraesuis* by Dr. R. P. Edwards, Salmonella Typing Station, University of Kentucky. The patient's serum agglutinated the organism down to 1 : 30 dilutions. He had not been in contact with hogs for twenty years.

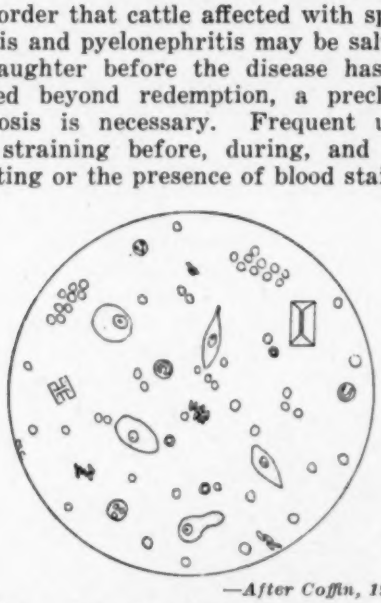
*By Drs. Joseph L. Posch, Bert E. Stofer and John Winslow Hirshfield, J.A.M.A., Nov. 27, 1943.

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Early Diagnosis of Pyelonephritis

In order that cattle affected with specific cystitis and pyelonephritis may be salvaged by slaughter before the disease has progressed beyond redemption, a preclinical diagnosis is necessary. Frequent urination, straining before, during, and after urinating or the presence of blood stains in

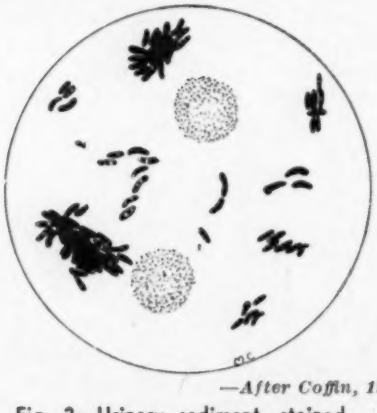


—*After Coffin, 1943*

Fig. 1—The unstained specimen of urinary sediment.

the urine are the early symptoms. The disease is detected by routine urinalysis comprising (1) specific gravity determination, (2) test for albumin, (3) acetone test, and (4) microscopic study of the sediment.

The bacteriological study for the detec-



—*After Coffin, 1943*

Fig. 2—Urinary sediment, stained.

tion of *Corynebacterium renale* is made by preparing smears of centrifuged sediment on two slides, allowing them to dry in air and become fixed by gentle heat, and then staining one with Gram's and the other with methylene blue. Examination of the stained specimens is made with the oil immersion objective. Affected animals will show: (1) normal specific gravity, (2) slight to heavy albuminuria, and (3) the stained specimens, few to many red blood cells, none to moderate numbers of white blood cells, numerous epithelial cells from the bladder, and a few to many of the specific bacteria in clumps. Cultural technique may be resorted to as an adjunct.

There are enzoötic outbreaks of this infection. The disease may remain relatively inactive for a long while in a single cow and then suddenly flare up in a number of exposed animals in two or three months. In that event, early diagnosis is indicated. A sample of urine is collected from each animal, albumin tests made, and specimens of the reacting urine sent to a laboratory for cultural study.—*D. L. Coffin, V. M. D., School of Veterinary Medicine, University of Pennsylvania, Veterinary Extension Quarterly, No. 92, October, 1943.*

Sulfadiazine Ointment

The sulfadiazine ointment used at the Johns Hopkins Hospital consists of stearic acid, 60 Gm.; white wax, 10 Gm.; anhydrous lanolin, 12 Gm.; liquid petrolatum, 10 Gm.; cetyl alcohol, 12 Gm., heated to 70 C. in a water bath; then mixed with triethanolamine, 8 cc. and 240 cc. of distilled water heated to 90 C. To these two mixtures, vigorously stirred, carbitol, 20 cc. and sulfadiazine, 22.5 Gm. are added and rubbed into a smooth ointment.

Unless equipped with the necessary apparatus, and unless time is no object, perhaps the job had better be done at the supply laboratory. Even the making of a salve, nowadays, is too delicate and time-consuming for the veterinary practitioner to undertake, and if one went to the druggist, could owners of animals afford to pay the cost? This Johns Hopkins ointment explains why we have exclusive pharmaceutical laboratories. They do things which practitioners can't do well enough to keep modern, and serve the livestock industry economically.

Scotland, which ceased to give any aid to the breeders of heavy horses in 1931, is again offering grants for that purpose on a limited scale. In England and Wales, horse breeders are given grants of a similar nature.—*The Veterinary Record.*

Penicillin for Syphilis

The curing of syphilis in eight days by workers of the United States Public Health Service at the Marine Hospital, Staten Island, N. Y., is announced as one of the triumphs of this wonder drug, along with previous reports that gonorrhea has been cured with it in fifteen hours. Remarkable also is that penicillin is not toxic like the arsenicals now in use. With the usual caution, the reports warn that many more cases will have to be thus treated before the drug can be pronounced a definite cure for syphilis.

The discovery of penicillin is also credited with the birth of a new science—the training of microörganisms to produce germ-killing chemicals.—*From Science Digest.*



The army mule and his special appareil, in military transportation on the Russian front, or why the Nazis did not capture the oil fields of the Caucasus.

Foot-and-Mouth Disease Not Bird-Borne

Professor Croton, of Edinburgh, is cited as having proved that the marrow of chilled and frozen meat carries the virus of foot-and-mouth disease, although since Stockman and Garnet suggested that migratory birds might act as carriers, no one has successfully refuted the supposition. Strangely, however, the two republics on the American continents which have no foot-and-mouth disease (Canada and the United States) are daily exposed to millions of migratory birds which cross boundaries of countries in which the disease is considered beyond control. Moreover, the cattle of both the infected and noninfected American republics are exposed to scavenger birds (vultures and buzzards) which cross boundaries to and fro, living almost entirely upon the carcasses of animals, unlike starlings which are blamed for carrying the virus to Britain from the continent. [*Edward Morgan: The Origin and Spread of Infection. The Veterinary Journal, 99, (July, 1943): 203-204.*]

Carbasone*

Carbasone appears to be an effective drug treatment of *Balantidium coli* infection, according to work done by Martin D. Young, parasitologist of the United States Public Health Service, and Robert Burrows, parasitologist, South Carolina State Hospital.

There has been no previously accepted treatment for this infection. The dose (human) was 0.25 Gm. per dose, 2 doses per day for ten days. This dosage eradicated the infection in 2 of the 4 patients treated. In 2 cases, the second series of doses was successful. Small doses cured another patient. The other 2 cases responded to 1.0 Gm. per day given in two doses. Post-treatment examinations made from four months to four years showed that the cure was permanent.

*Public Health Reports, Aug. 23, 1943, pp. 1272-1273. Anhydrous carbasone contains 28.85 per cent of arsenic. It has been employed for protozoan infections.

Human Diseases of Animal Origin

That the veterinarian, with reasonable certainty, can occasionally associate sickness in a client's family with sickness in his animals is incontrovertible. Diseases of animals transmissible to the human being are a part of our collegiate and post-collegiate curriculums. But, that veterinarians are not justified in reporting clinical human cases of such diseases without the confirmation of the physician concerned is also obvious. Among the manuscripts examined for publication in the JOURNAL, there are occasionally reports of human cases of such diseases based upon common knowledge, opinion, and observation which are rejected (as the lawyer would say) as incompetent. In short, it is not ethical for a veterinarian to pose as the diagnostician of human diseases, material and relevant as his diagnosis may seem.

Two recent examples illustrate: The owner of a herd of tuberculous cows has a daughter afflicted with an ocular tuberculosis which the veterinarian blames on the cows, without scientific proof except that the girl reacted to bovine tuberculin. Another case was that of stubborn scabies on the shin of a man who owned a dog affected with follicular mange. The diagnosis of the human case by the veterinarian was demodectic mange based on the ground that a well-known mange remedy cured both. The veterinarian's rôle, always, in dealing with known transmissible disease, is to advise his clients to consult his physician, and never under any circumstance recommend treatment beyond the animal sanitary problem involved. We are veterinarians, not physicians.

Sulfa Drugs Cause Vitamin Deficiency

The forming of the vital vitamins in the digestive tract by the action of gastrointestinal bacteria is checked by sulfa drugs given *per os*. Of this there is ample experimental proof (*Nutrition Reviews*, Sept. 1943). The inhibition is specific. Certain drugs destroy the forming of certain vitamins. The ones which absorb slowly, like sulfaguanidine and succinylsulfathiazole, are the most destructive to vitamin synthesis *in vivo*. For example, according to experimental data and clinical observations, sulfaguanidine prevents the synthesis of vitamin K and biotin. Since the loss can be compensated by the oral use of the right vitamin in the course of sulfa therapy, the problem of experimental medicine awaiting solution by the clinic is what particular vitamin or vitamins certain sulfa drugs destroy. It is already known that the slowly absorbed sulfa drugs, of which sulfaguanidine is an example, prevent the forming of biotin and folic acid by inhibiting the action of *Escherichia coli*, or, conversely stated, *E. coli* is a maker of these vitamin fractions. These facts are reminders of the significant fact that among bacteria there are friends of life as well as enemies. Removing them from the animal economy with germicides aimed at disease through the digestive tract must always account also for the destruction of friendly bacteria other than the synthesizers of vitamins. What of drug action on the protein and carbohydrate processors preëminent in cracking the roughage of herb eaters? To obtain maximum benefits from the use of drugs, their dynamics must first be known. The sulfa drugs, useful as they are, are not exceptions. In bovine medicine, furthermore, one must respect the microflora of the rumen which accounts for the presence of more vitamins than can be accounted for by the food intake. In fine, know your sulfa drugs. They are microbe killers, but are no respecters of microbes vital to health.

Horse "Colics"

Among the nutritional catastrophes in animals, none was more outwardly expressed than colic in city work horses before the coming of motor transportation. The high incidence of acute, digestive upsets was an outstanding feature of city practice. Taxed to the limit of their endurance by hard work, long hours, and fueled through a too-small stomach for all of the energy their stupendous muscular system expended, the one time city work horse, common as were his belly aches, was a marvel in livability considering what he had to endure. The mortality was higher until the stomach tube came into general use and therein lies the basic principle of scientific treatment of equine colic.

NUTRITION

MATERIAL FURNISHED BY THE COMMITTEE ON NUTRITION

Current Problems in Swine Nutrition

B. W. FAIRBANKS, Ph.D.
Urbana, Illinois

These are interesting times in the field of swine nutrition. During the past few years, new problems in this field have been brought to light and the final solutions of many are still to be unraveled. Some of these new problems suggest that traditional concepts in pork production need modification and others carry implications which are somewhat revolutionary to long established ideas about practical feeding. Consequently, a review of swine nutrition at this time is not quite as attractive as a discussion of some of the current problems.

Plant vs. Animal Proteins

Since the shortage of animal proteins, the comparative values of plant and animal proteins, and even the necessity of animal proteins in swine rations have been popular topics. It is impossible to definitely state whether one class of protein is satisfactory or not, unless such details as pasture or drylot feeding, age and weight of the pig, previous feeding, and all ingredients of the ration are indicated. Under one set of conditions, plant proteins may give satisfactory results, and an animal protein ration has failed under another feeding régime. The problem of plant *versus* animal proteins must be fractionated before the answer or answers may be enumerated.

It has been demonstrated that the plant proteins, used as supplements to cereal grains, give satisfactory results for growing-fattening pigs on grass pasture, from weaning to 50 lb. (Carroll, Burroughs, Fairbanks and Krider[1]).

Keith, Miller, and McCarty[2] fed rations containing cereal grains, supplemented with vegetable proteins, to growing-fattening pigs on rye pasture. The results were described as normal, but the economy of the gains was not as low as for other lots included in the experiment. The University of Illinois (Carroll, Burroughs, Fairbanks and Krider[3]) found that a ration of corn, soybean meal, and minerals was equal to a ration of corn, tankage, soybean meal, and minerals when fed to growing-fattening pigs on alfalfa pasture, from 50 lb. to market weight. Due to the high palatability of the soybean meal, there was a tendency for the pigs to overeat on this ingredient when self-fed free choice.

After growing-fattening pigs have attained a weight of 75 lb. as a practical average, plant-protein supplements give satisfactory response under drylot feeding conditions. The University of Illinois (Carroll, Mitchell, Hamilton, and Garrigus[4]) fed growing-fattening pigs in drylot, from 60 lb. to a market weight of 200 lb., a ration of soybean meal and alfalfa meal in comparison to tankage 2 parts, linseed meal 1 part, and alfalfa meal 1 part. The plant-protein supplements replaced the animal-protein supplements completely as indicated by rate of gain, feed economy of gain, and nitrogen balance. This experiment has especial significance as group feeding,

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Professor and chief in swine husbandry, University of Illinois, Urbana.

[1]Carroll, W. E., Burroughs, W., Fairbanks, B. W., and Krider, J. L.: Soybean Oilmeal for Weaned Pigs on Rye Pasture. Mimeo. Rep. AH1018b (1940) Swine Division, University of Illinois.

[2]Keith, T. B., Miller, R. C., and McCarty, M. A.: Levels of Supplementary Protein for Pigs on Pasture. Penn. Agric. Exper. Sta. Bul. 407 (1941).

[3]Carroll, W. E., Burroughs, W., Fairbanks, B. W., and Krider, J. L.: Soybean Oilmeal for Growing-Fattening Pigs on Alfalfa Pasture. Mimeo. Rep. AH1018c (1940) Swine Division, University of Illinois.

[4]Carroll, W. E., Mitchell, H. H., Hamilton, T. S., and Garrigus, W. P. The Value of Soybean Oilmeal for Growing-Fattening Pigs in Drylot. Mimeo. Rep. AH165 (1932) Swine Division, University of Illinois.

paired feeding, and nitrogen balance techniques were employed.

A fourth set of conditions, under which plant-protein supplements measure up with animal-protein supplements, is reported by Krider, Fairbanks, Catron and Carroll (1943). If growing-fattening pigs have access to pasture during the nursing period, they will produce pork on cereal grains, plant-protein supplements, and alfalfa meal when fed, from weaning to market, under drylot conditions. As will be indicated later, the pasture feeding before weaning is apparently responsible for the success of the subsequent feeding in drylot.

So far, the conditions for successful feeding of plant supplements have been described. Equal importance and attention must be given to known conditions in which the plant proteins have failed. Krider, Fairbanks, Catron and Carroll[5] experienced almost complete failure when they attempted to feed plant-protein supplements to growing-fattening pigs that had been held continuously under dry-feeding conditions from the time of farrowing. Moreover, they were unable to obtain anything which even approached nutritional adequacy when they supplemented their plant-protein basal ration with (1) synthetic thiamin, riboflavin, nicotinic acid, pantothenic acid, pyridoxine, and choline, (2) 6 per cent dried corn distillers' solubles, or (3) 10 per cent alfalfa meal. The plant-protein basal ration contained ground yellow corn, wheat flour middlings, soybean meal, fortified cod liver oil, and minerals. The latter contained adequate amounts of calcium, phosphorus, salt, iodine and manganese.

The value of animal-protein supplements is so well known and generally accepted that the conditions which make them successful in feeding need not be enumerated. However, it is necessary to point out and even emphasize a feeding and managing régime which was not conducive to a satisfactory response from animal proteins. Krider, Fairbanks, Catron and Carroll[5], under continuous drylot feeding conditions from time of farrow, fed, from time of weaning, an animal-protein basal ration composed of ground yellow corn, wheat-flour middlings, tankage, fishmeal, soybean meal, fortified cod liver oil, and minerals. Such a ration was not satisfactory for growing, fattening pigs from weaning time to approximately a weight of 75 lb. As might be expected from innumerable trials reported, the ration was apparently nutritionally adequate for the heavy weight pigs. At the lighter weights (weaning to 75 lb.), the animal-protein basal ration was improved by (1) synthetic thiamin, riboflavin, nicotinic acid, pantothenic acid, pyridoxine, and choline, (2) 6 per cent dried corn distillers' solubles, or (3) 10 per cent alfalfa meal. The greatest growth response followed supplementation with the six synthetic vitamins, but nutritional adequacy was more nearly approached by the addition of 10 per cent alfalfa meal.

The following summary of plant protein supplements *versus* animal-protein supplements has been given by Fairbanks[6]:

A) Plant-protein supplements alone give satisfactory results when fed to:

1) Growing-fattening pigs from weaning to 50 lb. on rye pasture, and from 50 lb. to market on legume pasture.

2) Growing-fattening pigs from 75 lb. to market in the drylot. Such a ration should include at least 10 per cent alfalfa meal (total ration basis) or its equivalent in sources of water-soluble vitamins.

3) Growing-fattening pigs that have had access to pasture before weaning and then changed to drylot. The ration in drylot should contain 10 per cent (total ration basis) of alfalfa meal or its equivalent of water-soluble vitamins.

B) Plant-protein supplements give very unsatisfactory results when fed to:

Growing-fattening pigs under conditions of continuous, drylot feeding. Such a ration is not made nutritionally complete when fortified with 10 per cent alfalfa meal, or 6 per cent dried corn distillers' solubles, or six, synthetic, water-soluble vitamins.

C) Animal proteins, as a part of the protein supplement, give satisfactory results to:

Growing-fattening pigs fed continuously under drylot conditions, but 10 per cent (total ration basis) alfalfa meal or its water-soluble vitamin equivalent must be included.

GESTATION AND LACTATION

It has been customary to discuss gestation and lactation separately. Such a fractionation may have some advantages aca-

[5]Krider, J. L., Fairbanks, B. W., Catron, D., and Carroll, W. E.: Vegetable *Versus* Animal Protein for Young Pigs. J. Anim. Sci. (Soc. Proc.) 2, (1943): 367.

[6]Fairbanks, B. W.: Wartime Feeding of Swine. Talk at the Annual Feed School Western Grain and Feed Association and Feed Institute of Iowa. Oct. 14, 1943, Des Moines, Iowa.

demically, as management practices may be outlined and emphasized for the optimum results in each of these two phases of swine production. To fractionate the nutritional requirements into gestation and lactation and hold rigorously to the estimated requirements for each nutrient for each period may be defeating the objective of efficient feeding throughout both gestation and lactation.

When the requirements of energy, proteins, and minerals are estimated for gestation, they are low by comparison to the requirements of these nutrients for lactation. Such determinations of nutritional needs have supported the statement frequently made that there is a tendency to overfeed during gestation and to underfeed during lactation.

During recent years, it has been demonstrated by several experiments that rations, adequate in energy, proteins, and minerals for gestation and lactation, have failed to give expected performances. The most recent report is that of Cunha, Ross, Philips, and Bohstedt[7], in which "a basal ration of ground yellow corn 80.5 per cent, soybean meal 13.0 per cent, ground alfalfa hay 5 per cent, bone meal 0.5 per cent, limestone 0.5 per cent, iodized salt 0.5 per cent, plus supplementation with irradiated yeast and shark liver oil" failed to support normal reproduction when fed to brood sows. Normal reproduction followed when the basal ration was supplemented with 10 per cent of alfalfa meal (15% total) or with soybean lecithin, plus pyridoxine.

The University of Illinois (unpublished data) noted failure during the lactation period when the brood sows received during gestation a ration composed of ground yellow corn, soybean meal, tankage, fish meal, a mineral mixture, and fortified cod liver oil. A comparable group of sows, receiving during gestation the basal ration supplemented with 12 per cent alfalfa meal, but fed only the basal ration after farrowing, produced results far superior to those of the first group. The greater efficiency of the second ration demonstrated a residual effect of the more nutritionally adequate ration of gestation which was manifested during lactation.

[7]Cunha, T. J., Ross, O. B., Philips, P. H., and Bohstedt, G.: Further Studies on the Effect of Diet on Brood Sow Performance. J. Anim. Sci., (Soc. Proc.) 2, (1943): 365.

It would seem that the nutritional requirements of gestation and lactation can not be enumerated at this time as the requirements for the factors of the vitamin B_2 complex are not known, and it has not been definitely demonstrated that all factors of this nutritional complex have been identified. If all factors were known and their requirements for gestation could be given, the residual effects of gestation feeding must not be ignored. In practical swine feeding, the requirements of gestation must be met during the gestation period, and in addition, nutritional reserves for a successful lactation period may be built up.

A Bit of Philosophy

After a careful reading of many papers on the feeding of swine, I hazard the suggestion that a new fundamental philosophy should be considered in the planning and interpreting of investigational work on swine feeding. For years, we have thought in terms of rations and the ingredients that go to make up those rations. The problems investigated have been concerned with the value of ingredients added or with the efficacy of the replacement of one ingredient with another. In the last analysis, the fundamental problem is not one of kinds and amounts of ingredients but one of nutrients and amounts of each nutrient found in the ingredients used. Hogs prosper and do an efficient job of production on food nutrients, not upon feed ingredients. Food nutrients include not only the well-known carbohydrates, fats, proteins, and all the essential minerals, but also the fat-soluble and water-soluble vitamins.

If emphasis is placed upon food nutrients and not upon feed ingredients, more attention will be given to the quality of the feed ingredients. The results of many experiments have been clouded by variations in the food nutrients of the feed ingredients fed, such as tankage or alfalfa meal, to cite two examples.

There is a need for more definite information on the nutritional requirements for swine of various classes and growing-fattening pigs of various weights. Much work has been done with pigs weighing 50, 60 and 70 lb. at the beginning of the experiment. This is testing feeds at a noncritical time in the life. Work at the University of Illinois indicates that a ration may be adequate for a pig weighing 75 lb. to mar-

ket weight, and also adequate for gestation, but the same ration will be inadequate for pigs from weaning to 75 lb. and for lactation, even when accepted adjustments in protein levels are made.

There is a need for a greater appreciation of the residual effects of previous feeding. It has been demonstrated that responses during lactation can be traced to previous feeding of their dams during gestation. The feeding régime of the sows during lactation has been reflected in the performance of their pigs during the growing-fattening period. There is a residual effect of creep feeding in the growing-fattening period, and many results in drylot have been influenced by previous feeding on pasture.

Problems in Pet Animal Feeding

Poor palatability of foods for pets, prepared according to wartime formulas, is one of the serious current problems. When dogs and cats refuse to eat these rations it disturbs the owner and annoys the veterinarian. If the ration has good feeding value but is unpalatable, the following procedure will aid in encouraging better acceptance.

First, moisten the food properly. To pour an unmeasured amount of water over a dry or dehydrated food and offer it to the animal does not work well. Better results are obtained if one part of ration, by weight, is moistened with one part, by weight, of either water, broth from bones, or vegetable water, and allowed to remain in a refrigerator or other cool place for at least ten or twelve hours. To prepare for feeding, warm the moistened food and add at least 5 per cent, by weight, of hot fat. Mix thoroughly and feed while warm. Such a ration more nearly approximates the moist, fatty mixtures to which animals are accustomed. This procedure will often encourage dogs and cats to eat dry or dehydrated rations which they otherwise refuse. In addition to enhancing palatability, proper moistening increases digestibility, thereby improving the efficiency of the ration and decreasing loss of nutrients in the excreta.

One of the serious deficiencies in present day rations prepared for pets is the poor nutrient value of the protein. This may be corrected by proper supplementation with meat products containing protein of high biologic value, *e.g.*, beef kidney. Meat markets should be able to obtain meat products from the packers which are no longer rationed, such as beef lungs, tails, brains, udders, diaphragms, edible bones, gullet meat, kidneys, spleen, lymph glands, and a number of other items. In addition, fresh and salt water fish are available in many markets; horse meat can be obtained in most areas. These meat products, when properly combined with cereals, fats, minerals, and vitamins, can be formulated into satisfactory rations for pet animals.

If the protein feeding value of each ingredient used in the rations were known, it would be comparatively simple to determine the amount of each to be incorporated in the diet. For example, such information might reveal that it requires much more beef lung protein to obtain the same nutritive results that could be obtained from horse meat, beef or game. Once these protein feeding values have been properly determined, it will greatly simplify the veterinarians' work in advising clients how to feed their pets and also how to prepare special rations for hospitalized animals.

Our present food shortage has necessitated radical changes in feeding methods, not only for domestic livestock but pet animals and human beings as well. As a result, veterinarians and owners of pet animals have found various ways and means of solving these problems. It would be helpful to this committee and to other members of the profession if veterinarians would send a brief account of their experiences to the JOURNAL.—*M. L. Morris.*

Better Milk for North Ireland

Measures to improve the quality of Britain's milk includes a milk bill before the Parliament of North Ireland and a memorandum by the Ministry of Agriculture explaining its purposes. The bill provides for Grade A milk from tuberculin-tested cows, Grade B milk from cows given a physical examination, and pasteurized milk. Milk consumption of North Ireland has increased almost 100 per cent since the start of the war. Twenty-nine million gallons were produced last year. [North Ireland is the training place of a large number of American troops.—Ed.]—*The Veterinary Record, Nov. 20, 1943.*

EDITORIAL

Edelmann's Meat Inspection Book Castigated

A book review in the *American Journal of Public Health* criticises "Edelmann's Text Book of Meat Inspection" for stated reasons, to wit:

1) For failing to stress the large percentage of cattle, sheep, and hogs in this country that do not receive federal meat inspection.

2) For overlooking the moot question of state and local meat inspection.

3) For covering up the details of the trichinosis problem in view of recent discoveries on the high incidence of that disease in man.

4) For dodging the important question of meat-food poisoning, especially staphylococcus poisoning, recently brought into the foreground of medical research.

From the public health point of view, the reviewer regards these omissions as a cardinal neglect of duty or oversight. Federal meat inspection is castigated for keeping itself "isolated from other federal, state, and local agencies in related public and food-control fields." Rarely has a spokesman of the public health service written that plainly about meat inspection as a health measure. It seems to be an example of a critic suddenly coming upon the problem uninformed on both the veterinary-agriculture hook-up and the American system of government. Federal meat inspection is conducted under the directives of the Secretary of Agriculture, not the Surgeon General of the Public Health Service. Whatever benefit the public health service gets out of the federal meat-inspection system is a gift of agriculture, free of charge. Meat inspection is a branch of farming, not yet a branch of medicine, whether right or wrong. Its work starts at the farm and ends at the abattoirs, engaged in interstate trade, where two generations of veterinarians have waited in vain for the public health service to take over. The handling of meat from the coolers of the big packers to the butcher's block, or from the local slaughtering place to the small town kitchen, is not the duty of agriculture nor of its local veterinarians. There is, indeed, a long chapter to be written by the public health service on what health agencies should have been doing long, long ago about the local slaughterhouse and the handling and the selling of meat. Certainly, there has been no lack of hinting, urging, begging for reforms in veterinary literature, and as far as federal meat inspection is permitted to function under the American system of government, it is generally admitted to have done a fine job. Beyond its bournes lies the undone task of the public health agencies. Why befuddle the issue by carping over a book? We know of no comparable books in the medical libraries. Obviously, meat inspection in medical science has been but an exotic trifle. Or, is it a political question too hot to handle? Except in the coöperative rôle, neither the Bureau of Animal Industry nor the Public Health Service has any legal right to meddle with local police work. Before stepping in to criticise food inspection, the public health expert must first comprehend the fundamental obstacles allied thereto, let us say, the business obstacles that medical science finds convenient to let alone. Veterinary science in public health work always reminds one of the little Fox Terrier snapping at the heels of the big bad wolf, hopeful that some Nimrod like the p.h.s. will step in and finish the job.

Reduced to the common denominator, federal meat inspection is the gift of the farmer to the people. It has nothing to do with the flourishing flora of the delicatessen, the raw sausage of the local butcher, nor the filthy abattoir at the edge of town. What are public health agencies doing about these? The veterinary profession has used a lot of printer's ink calling attention to unwholesome food over which it has no control. And, always our criticisms of public health agencies have been studiously charit-

able, knowing that they too are stymied through lack of popular demands, and that public health measures interfering with business are apt to be quickly tabooed.

What we are trying to say to the critic of Edelmann's book on meat inspection is that quibbling over this well-known problem isn't getting at the bottom of its imperfections, and that federal meat inspection in the United States, so far as it is permitted to function, has no apologies to make to the American people, or to anyone else. Its record is nothing less than glorious.

As to local meat inspection, the surface has been scratched here and there through state laws and municipal ordinances, but the local health officers in general, including those of the large cities, remove but little unclean meat from the channels of trade. In poultry, the situation is tragic. Except for a tiny percentage packed and frozen by a few eviscerators, poultry has the green light from farm to pot. *PM's* exposure of New York's poultry is not forgotten. In the alleys back of Fulton street, Chicago, women with burlap sacks gather dead chickens from the garbage cans. Wonder what's done with them? And so the story runs, while an expert of the public health service criticises a book for not stressing staphylococcus meat poisoning.

The Merchandising Druggists

There is one drug store for every 2,200 people, each one of them encroaching upon stores engaged in other lines of merchandising. Druggists, on the one hand, protest against the poaching of other stores on the drug trade and, on the other hand, they have to explain the reason why they go into competition with tobacco, confectionary, soft drink, book, variety and other stores, not mentioning their fling into the restaurant business on quite a large scale.

Why the drug store became the local variety shop is understandable and nowhere condemned except at the colleges of pharmacy which, true to the traditions of an ancient art, look askance at the trend. As a handy place to get cigarettes, the morning paper, a magazine, a drink of "coke," a couple of envelopes and a postage stamp, the drug store is a veritable service-station in any community which could not support separate stores for each of these lines of merchandise. All hats are off to the druggist, big town and small town, for his handy store and his manifestly friendly ways, but we are surely disappointed to see any one of them throw ethics to the winds and enter the field of veterinary medical quackery, to the detriment of a contemporary profession and the country. It's not natural.

The Departmentalized Journal

Material received for publication is acknowledged by postal card the moment of its arrival. Manuscripts and other material are given consideration for publication by the editors in the order received and, if accepted, are allocated for use in the department, or section, of the JOURNAL to which they belong. The classification is as follows:

1) The first, or general, section is for *original monographs* on technical or professional subjects, including, as a rule, papers presented at the annual meetings of the AVMA, or at meetings of constituent associations, and all material of universal interest.

2) *Surgery & Obstetrics* and *Breeding Problems* are set apart in a separate section for the obvious purpose of circumscribing the vast field these subjects represent in veterinary practice.

3) *Clinical Data* is for material relating to the application of veterinary science in the treatment and prevention of disease, mainly internal and external diseases not belonging to surgery and breeding.

4) *Nutrition*, covering the subjects of feeds, feeding, and the process of nutrition, is a new section directed by the Committee on Nutrition. The material is officially approved by that committee.

5) The *Editorial section*, or voice of the editors, aims to discuss the matters of current interest to the Association, to tell the profession what's going on, and to arouse interest in reforms necessary to public welfare. It's the what-do-you-think section of the JOURNAL. The editorial *proposes*, the Association *disposes*. Its purpose is to command attention, not to command.

The editors are the "hired hands" of the members.

6) *Current literature* represents the Association's effort to point out currently published articles and books related to the operations of the veterinary service. The section is *not a review* of current veterinary literature. Although desirable, a complete review of the literature is not deemed possible at the present time. A department named a Review of Current Literature, unless complete and systematically presented, would seem pretentious and unbecoming.

7) *The News* section aims to give the many activities of the Association between the regular annual sessions and of its constituent connections—the United States Bureau of Animal Industry, the Army and the federated state associations; the livestock regulatory work, personal notes of general interest, coming meetings, deaths, marriages, and births. "What the Newspapers Say" is intended to reflect what the Association's educational publicity program and the Committee on Public Relations strive to do in enlightening the public on what the veterinary profession does for the livestock industry and the country as a whole.

8) *The Veterinary Profession and the War* publishes official announcements from the Surgeon General's Office, the War Manpower Commission and Selective Service, and other governmental agencies dealing with the veterinary profession and the war; also such other information as may pertain to veterinary war efforts and related activities.

9) *An' Related Topics* is a *pot au feu* strewn among the advertising pages in the terminal form. Its value is left to the mercy of the reader.

Such is the make-up of the present JOURNAL. The classification of technical material is not exact since the subject matter of any one of the first four sections may overlap one or more of the others. Material to fill the various sections is solicited and advice on their improvement is invited. The JOURNAL is what its readers enable us to make it. If material sent is not published promptly, be patient.

Activities of the "Control Agency"

By the "Control Agency" is meant the regulating authority of anti-hog-cholera serum and virus production and distribution established and maintained in the U. S. Department of Agriculture by an Act of Congress. The chairman is Guy H. Williams, president of the Corn States Serum Company, Omaha, and the membership consists of the firms engaged in that industry. The purpose in general is the promotion of swine production through the control of hog cholera, the stabilization of prices of serum and virus, the maintenance of an adequate reserve supply to meet emergencies, and compliance with a formulated marketing agreement. The chairman's annual report submitted to the Agency at a meeting held in Chicago in November, 1943, shows that the production of anti-hog-cholera serum and virus is listed among the essential industries, that it is entitled to priorities in the procurement of supplies and repairs, and is classified as such by the Selective Service laws relative to manpower.

But what is particularly significant is the fact that through the activities of the Agency members, it was possible to increase hog production to unprecedented heights. The number of hogs slaughtered for 1943 is estimated at 100 million head, 61 million of which were vaccinated with serum and virus. An important point in the report is the small amount of serum on hand at the close of 1943, and, therefore, the importance of keeping pace with the demand for 1944 through uninterrupted production.

The amount of serum produced in recent years is given as follows:

Year	*cc.*
1936	730,079,660
1937	755,694,773
1938	875,123,075
1939	1,293,735,169
1940	1,181,818,124
1941	1,271,462,894
1942	1,548,257,270
1943 (est.)	1,905,000,000

The 1943 production is, therefore, 123 per cent of 1942 and 260 per cent of 1936, the year when the marketing agreement went into force. These figures, thanks to the physical and financial resources of the industry, show the important part the American Corn Belt plays in the war effort of the United Nations.

William P. Hill 1870-1943

William P. Hill (Ont. '95), colonel, V.C., U.S.A. (retired), died at his home at Coral Gables, Fla., Dec. 11, 1943. Colonel Hill was born in India, the son of a general officer of the British Army and came to the United States as a young man. In 1902, he accepted an appointment as veterinarian for the 12th Cavalry stationed in Texas and was commissioned first lieutenant in the Veterinary Corps, Regular Army, March 22, 1917, following the congressional action granting commissions to army veterinarians. He was promoted to major Nov. 8, 1917, and during the postwar period to lieutenant colonel and colonel, retiring on account of the statutory age limit, May 1, 1934.

Colonel Hill's death removes another of the remaining few who served in the Regular Army veterinary service before the days of commissioned rank for them and who, through faithful professional work and untiring effort, won for the Veterinary Corps the high rating it now enjoys in the American military organization. Colonel Hill was sent to France and England in 1916 as an observer before the United States had declared war against the Central Powers and was on the ground, primed with experience, to aid in the forming of a veterinary corps in General Pershing's command. Working with the Remount Division of the Quartermaster Corps in which the command had placed the veterinary service for administration, Colonel Hill was instrumental in having an excellent veterinary hospital established for the troops in training and in finally having the Corps restored to the direction of the Medical Corps in France as it was in home jurisdiction. For this achievement and for establishing the well-equipped veterinary hospital at Neufchateau (Vosges) to demonstrate how veterinary service should function with a large force of troops in action, Colonel Hill's name deserves a high place in our veterinary corps history. He became the first Chief Veterinarian of the A.E.F. of World War 1, when that office was created under the general orders he helped to frame. This writer (Merillat) worked close to Major Hill during the critical period of veterinary corps development and, therefore, feels deeply the obligation owed William P. Hill and (lest we forget) Louis A. Klein for planting the seeds of what was to develop into the most comprehensive veterinary military service of the world's history. Let their names not be forgotten, least of all by the veterinary officers watching over food and animals in many parts of the world under a general officer and a smooth-running command.

The Paper Situation

Please! As the Journal's utmost desire is to cover the field of veterinary medicine as completely as possible during the shortage of pulpwood and paper pulp which has compelled the War Production Board to curtail the use of newsprint, the editorial staff again calls attention to the importance of shortening manuscripts in every possible fashion, not forgetting that after all brevity is the most redeeming feature of writing. "For the duration" at least, contributors are requested to avoid the use of space-eating tables, redundant phrases, sentences, and perhaps whole paragraphs, which consume precious space without adding comparable value to the material. *See* "Government" in the News Section, page 119.

The wartime *desideratum* for the AVMA is more articles, more subjects, and fewer words; as a prominent member of the Research Council wrote (Jan. issue, p. 42); less footage, please.

New Jersey Insemination Unit Wants Veterinarian

The New Jersey Coöperative Artificial Breeding Association No. 1, with headquarters at Flemington, N. J., is desirous of obtaining another veterinarian. The unit now employs three veterinarians full time but the increased membership necessitates the services of another. The position pays $2,700 per year plus $1,000 mileage allowance, with one month's vacation with pay. Inquiries may be addressed to Mr. D. M. Babbitt, County Agricultural Agent, Court House, Flemington, N. J.

The brush of slaughtered cattle, that is, the long tail-tip hair, is taken by the army and goes into the hair mattresses needed in increasing numbers for hospitals and barracks.

"Comparative Medicine" vs "Veterinary Medicine"

Since the turn of the century and before, the desire to abolish "veterinary" has been strong. The desire first took form at the Chicago Veterinary College where "Doctor of Comparative Medicine" (M. D. C.) was conferred. The step was too daring to survive. It connoted a coverage of the whole vista of medicine, including human medicine. Students of the School of Medicine, Northwestern University, a few hundred yards away, jeered at the idea of conferring such a degree after two college years of six months each, and they were right. Mass opinion of students is seldom wrong.

Our Canadian and British colleagues like the term "comparative medicine" for their classical journals; and the Royal Society of Medicine has a "Section of Comparative Medicine," meaning animal medicine, that is designed to shed light on the various branches of human medicine. In short, the term "comparative medicine" is intended to signify animal pathology, as if to somehow dodge "veterinary," the century old word of definite meaning.

Would not making "veterinary" a word to be proud of be the more happy ending of this play of words? It is not the quackery of the past to be lived down. Every one of the so-called learned professions have much to answer for in this respect. The job remaining undone in our case is cultivating a popular understanding of man's debt to the animal doctors—the hunger fighters. In taxonomy, *physician* and *veterinarian* occupy different levels because man has lived unaware of his perpetual dependence upon the health of animals and the science thereto allied. As of 1943, while our alleged civilization is fighting with its back to the wall, one finds that man has not yet taken time to figure that out.

Moreover, we handle so many genera and species of animals there is no need of being reminded that our work is "comparative." There is a lot of difference between handling the paw of a pooch and the hind leg of a mule. On the other hand, if the medical profession does not keep its etiology straight by studying animals, that's not our affair. There is a lot of comparing to do in both fields. Medicine is nothing else but.

Judging from the prominence "veterinary" has won as a global war is raging, there should be no desire to abolish the word for ambiguous terms. The conversations of some forty nations which met at Hot Springs, Va., in May did not dodge the word. Let us be hopeful that the proponents of "animal pathologists," "livestock sanitarians," "meat inspectors," *et al.*, will not step in and abolish a word of very definite meaning and centuries old. We maintain veterinary colleges and they confer the degree of Doctor of Veterinary Medicine, then when the diplomate goes out into the world his identity is lost in agencies that tried to abolish "veterinary." Fortunately, far-seeing men have succeeded in retaining the word in the name of our national, state and local societies.

January (1944) Journals Needed for Army Veterinary Stations

After members have finished reading their January issues of the AVMA JOURNAL, *they can help supply Army needs by returning copies in good condition to the Association's publication department in Chicago. Twenty-five cents plus postage will be paid, until further notice, for copies received in good condition.*

The Surgeon General's Office of the Army has entered a subscription order for the JOURNAL *for 1944 which is several times larger than in previous years. The order was not received until after the January issue was off the press, consequently the usual over-run is not large enough to supply all the* JOURNALS *needed for the veterinary installations in this country and overseas.*

Members who are willing to spare their January issues should mail them, postage paid, to the AVMA Office, 600 S. Michigan Ave., Chicago 5, Ill.

CURRENT LITERATURE

ABSTRACTS

Roughage Essential in the Ration of Ruminants

Ruminants do not thrive on concentrates alone. The reason has been studied by several investigators. Calves have been raised on concentrates through growth, pregnancy, and lactation but bloat, fatal in some cases, could not be avoided. Concentrates, finely ground, seem to have chemical and physical deficiencies. Little benefit was derived by adding soft pulpy material (paper pulp, cellophane). The physical factor appears to be the coarse material needed to stimulate the nerve ending of the rumen. Grinding the roughage, the chemical constituents being equal, did not alter the deficiency. The effect of coarseness was lacking. Cows go off feed with such ration and resort to wood chewing. This manifestation ceased when whole alfalfa was fed. Cattle require coarser feed than sheep. Lack of coarse feed causes suspended or diminished rumination. Bloat is caused by difficulty in eructation, reduced intake, and depraved appetite. [*H. H. Cole, and S. W. Mead, University of California: A Physical Deficiency in the Ration of Ruminants, Science, 98, (Dec. 17, 1943) : 543-544.*]

The Veterinarian and Better Milking

Every challenge that disease of animals has made, the veterinary profession has successfully met, and one of the consequences is the world's largest milk production. Cows have changed by breeding and usage but milking is practiced in about the same fashion as when the primitive cow gave but 100 pounds of milk yearly.

The udder of the adult cow weighs from 10 to 35 lb. in addition to a fluid capacity as great as 50 lb. The hind quarters have from 25 to 50 per cent more secreting tissue than the front ones and secrete 60 per cent of the total milk. In view of these facts, why has not the method of milking changed? The "letting down" of milk is governed by a reflex due to high intraglandular pressure caused by oxytocin in the blood. Approaching the ways of the suckling calf, regular milking, and unchanged environment which the cow associates with milking time should be maintained. Walking in from pasture, cleaning stalls, arranging bedding, the clanking of buckets and starting the milking machine are among the stimuli which induce cows to "let down" their milk. Fast milking is important as delays allow the oxytocin to become dissipated and, thus, various amounts of milk will remain in recesses of the gland. In machine milking, minimum stripping is desirable. Often it is overdone but should be considered as an inspection of the udder to determine if the milking has been properly done. There is about 1 problem cow in 20 that does not "let down" her milk or slow milkers due to smallness of the streak canal, narrow meati, or scar tissue. These cows cannot be milked rapidly.

When 2 lb. of milk are left in the udder the milking should be considered incomplete. Generally but 0.3 to 0.5 lb. can be stripped. Incomplete milking, however, does not aggravate streptococcic mastitis as was shown experimentally by Woodward, Hotis, and Groves, but proper milking makes healthier cows. Avoid unpleasant, post-parturient experiences as these may last throughout the lactation period. Be careful with the first milkings of heifers, feed before or after milking—cows at pasture do not suckle their calves while eating and experiences have proved that they react better when not fed while being milked.—[*George H. Hopson, D.V.M.: The Veterinarian and Better Milking, DeLaval Monthly, November-December, 1943.*]

Urinary Calculi in Sheep

The relationship of feed and the incidence of urinary calculi in sheep is discussed in a technical bulletin entitled "The Effect of Rations on the Production of Urinary Calculi in Sheep." The rôle of vitamin-A deficiency along with "side factors" as a cause of gravel in sheep was established by feeding experiments which were a continuation of previous work of the same genre, carried out since 1937. In general, alfalfa prevents urinary calculi while the vitamin-A-deficient ration is a causative factor. Cane fodder, wheat bran, and white corn which make up a ration low in vitamin A and one with a narrow Ca-P ratio were found to be more likely to produce gravel than a ration containing alfalfa and yellow corn. The cane-bran, white corn ration lead to low water consumption and small quantity of urine. There was found to be some liklihood that calcium and sodium carbonates supplements may cause the development of urinary calculi even when

adequate amounts of alfalfa are fed. The intake of vitamin A, water, calcium, phosphorus, magnesium, and silica were studied in the experimental feeding. [*I. E. Newson, J. W. Tobiska, and H. B. Osland: Title loc. cit. Bulletin 31, June, 1943. Colorado Experiment Station, Fort Collins.*]

Staining Intestinal Parasites

Iron hematoxylin staining of fecal preparations for the study of intestinal Protozoa remains a procedure which is limited, unfortunately, to larger hospital laboratories and research institutes. This condition exists largely because the techniques generally employed are time-consuming and difficult to do. Frequently, even by experienced workers, unsatisfactory preparations are obtained. If a reliable, simple, and rapid technique could be evolved, the iron hematoxylin method would be more widely used and could be used in the routine stool examination. Accordingly, the method given below was devised and used for the past year with satisfactory results. The cysts and trophozoites of the amebas, Chilomastix and Giardia are stained by the method with results comparable to those of the more complicated procedures; trichmonas as in the case of other methods, stain less perfectly. It is possible to obtain temporary preparations suitable for diagnosis in less than ten minutes.

The outstanding feature of this modification of iron hematoxylin stain for intestinal parasites, lies in the principle of the use of acetic acid to modify the speed of staining of the hematoxylin, thus, making the timing of staining simple and positive. Since no separate step of destaining is required by this method, the uncertain and troublesome differentiating under the microscope is eliminated.

THE METHOD

1) By means of an applicator, make smears of fresh stool and, while wet, place in Schaudinn's fluid. Allow to fix for at least two minutes. Staining ability is unaffected if left in this solution for several days.

2) Place in 95 per cent alcohol for fifteen to thirty seconds. (If permanent mounts are desired, better results may be obtained by removal of mercuric chloride with iodine-alcohol.)

3) Rinse in water.

4) Mordant for two to three minutes in iron alum at 56 C.

5) Rinse in water.

6) Stain in hematoxylin solution for one to two minutes at 56 C.

7) Rinse in water and allow to stand until blue-black. (For permanent mounts, to prevent fading, slides should be washed in running water for fifteen to thirty minutes.)

8) Dehydrate in 95 per cent alcohol thirty seconds to one minute, followed by absolute alcohol or acetone, one minute.

9) Clear in xylol.

10) Mount in clarite, Canada balsam, or gum damar.

The smears must not be allowed to dry during the entire procedure.

SOLUTIONS

I) *Schaudinn's fluid:*

Saturated mercuric chloride (aqueous)	2 parts
Alcohol, 95%	1 part
Glacial acetic acid—10% V.	

II) *Mordant:*

Iron ammonium sulfate	5.0 Gm.
Distilled water	100 cc.

III) *Hematoxylin solution:*

Alcoholic hematoxylin (10%, either fresh or ripened)	0.4 cc.
Glacial acetic acid	0.8 cc.
Distilled water	40.0 cc.

Markey, R. L., Culbertson, C. S., and Giordano, A. S.: "Rapid Method for the Staining of Intestinal Parasites." Am. J. Clin. Path. (Technical Section), 7, (Jan. 1943): 2-3.

Sulfonamides in Bronchial Secretion

When sulfonamides were given orally, the concentration of the drug in the bronchial secretion was 60 per cent of that in the blood. Higher concentrations were obtained from intratracheal and intrabronchial instillations of 5 per cent aqueous suspensions of the drug but elimination was more rapid (24 to 48 hours). In making the determinations, sulfadiazine and sulfathiazole were used on selected patients suffering from bronchiectasis.

The volume of sputum was reduced and favorable results on the bacterial flora were evident.—[*Charles M. Morris, M.D.: Sulfonamides in Bronchial Secretion: The Effect of Sulfonamides in Bronchiectasis. J.A.M.A., 123, (Nov. 13, 1943) : 667-670.*]

American Review of Russian Medicine

The launching in this country of a new medical journal entitled *American Review of Soviet Medicine* is a reminder of the dramatic development of medicine in Russia since the revolution of 1917, and also of man's debt to Russian science under the régime of the czars. Number 1, volume 1, of 96 pages is a classical example of the status of "man's greatest fraternity,"—the medical profession of World War II, *n.b.:* articles on the medical care of the wounded, effects of frost bites, the time element in repair of peripheral nerve lesions, nerve transplanting, feeding in penetrating abdominal wounds, transplanting tissues, blood transfusion, gun-

shot wounds of blood vessels, experimental cancer research, physical culture and health work in Soviet Russia during the past twenty-five years. The foreword by President Walter B. Cannon of the American-Soviet Medical Society, of which the new journal is the official publication, points out with feeling that the vast "brotherhood of doctors of medicine during bitter warfare among civilized people", in interchanging ideas and giving scrupulous surgical care to enemy captives, gives proof of what medical knowledge represents in the process of evolution, even as an unprecedented international conflict rages. The journal is a bimonthly, priced at $6.00 a year for nonmembers; single copies, $1.00. The editor's address is 1900 Monument street, Baltimore, Md.

Stringhalt

The "logical" causes of stringhalt set forth are abnormally large tibial spine, pathological conditions of nerves and muscles of the affected leg, chronic sciatic neuritis, spinal sclerosis, "straight" hock, contraction of the peroneus, arthritis of the hock or stifle, and some aberration of the nervous mechanism of the involved limb. The author attempts to distinguish between idiopathic and symptomatic stringhalt. Tenotomy of the lateral digital extensor at the level of the metatarsus has value only when contraction of that muscle is the cause, which is true in about 30 per cent of the cases. Whether a part of the tendon should be resected is controversial. The operation may be done with the animal standing, under local anesthesia, or restrained on the ground or table. In short, the pathology of stringhalt is a mystery and surgical cure uncertain.—[*J. E. Janson: Stringhalt in the Horse. Veterinary Student, 4, (Fall, 1943): 81-82.*]

Antithiamin Factor in Fish*

Certain fish, particularly their viscera, skin, heads, and scales contain an antithiamin factor that is destroyed by cooking or drying. Whitings, herring, suckers, smelts, pike, and mackerel of the Atlantic Coast, Pacific Coast, and Great Lakes regions produce a paralytic disease in animals but thiamin deficiency of this origin is not likely to be frequent in man as only cooked or dried fish meat is eaten. However, diets containing 10 per cent of whole raw fish promptly produced symptoms.—[*P. S. Owen and J. W. Ferrebee: Antithiamine Factor in Fish, New England J. Med. 229, (Sept. 9, 1943) : 437. Abst. J.A.M.A. Nov. 27, 1943.*]

*The abstract does not mention Chastek paralysis of foxes traced to feeding fish.—Editor.

Sulfa Drugs in Bacillary Dysentery (Human)

Sulfathiazine and sulfathiazole in doses of 1 gr. per lb. of body weight, and sulfaguanadine and succinylsulfathiazole in 2 gr. doses per lb., cleared away 90 per cent of the cases with positive stools. These doses caused complete inhibition of the growth of intestinal bacteria in 50 per cent of the cases treated with sulfathiazine, 63 per cent of those treated with succinylsulfathiazole, and 37 per cent of those treated with sulfaguanidine.—[*Henry M. Eisenoff, M.D., and Hyman Goldstein, M.D.: The Control of an Outbreak of Bacillary Dysentary with Sulfonamides, J.A.M.A. 123, (Nov. 6, 1943); 624-626.*]

Promin in Human Tuberculosis

Promin, a sulfonamide derivative, was used by the authors on 106 tuberculous patients during the past year, with results justifying further trials. The drug was most effective in patients having recent lesions of the exudative type. Destructive, terminal stages were not influenced by the use of the drug, and, inasmuch as recent cases tend to improve spontaneously, it could not be determined to what extent the rapid improvement could be attributed to the treatment. Reversal of sputum from positive to negative and the closure of cavities in 28 per cent of 10 cases, were notable after four to twelve months in cases adequately treated. [*H. Corwin Hinshaw, Karl Pfuetze, and William H. Feldman: Treatment of Tuberculosis with Promin. The Am. Rev. of Tuberculosis, 47, (Jan. 1943): 26-34.*]

Spirochetal Jaundice—Weil's Disease—Leptospirosis

The disproportion between the human cases of spirochetal jaundice recorded in the United States and Europe is outstanding. In Holland alone, 808 cases were diagnosed from 1924 to 1937 and in Great Britain at least 248 proved cases occurred from 1924 to 1938. *Per contra*, Stiles and Sawyer (J.A.M.A., Jan. 3, 1942) were able to collect but 73 authentic cases, notwithstanding that vectors of Leptospira are not lacking in this country.

The discrepancy is in part explained by the similarity of spirochetal jaundice to pneumonia, in its early stage. It may be mistaken for the secondary hepatitis of pneumonia or sulfonamide therapy. Fever, headache, prostration, myalgia, signs of liver and kidney damage, leucocytosis, and the history of the case (immersion, occupation) are incidents which point to this spirochetosis. [*Francis E. Brung, M.D., Carl J. W. Wilen, M.D., and J. R. Snavely, M.D.: Spirochetal Jaundice. J.A.M.A., 123, (Oct. 30, 1943) : 519-521.*]

The Incidence of Nonclinical Human Trichinosis

A study of 5,313 diaphragms, examined *post mortem*, at 189 hospitals in 114 American cities in 37 states and the District of Columbia by workers of the United States Public Health Service during several years, showed that 855 (16.1%) were positive for *Trichinella spiralis*. Of the diaphragms of 200 Jews, only one was positive. The series included 3,000 cases, dead from various causes, from Washington and five seaboard cities and the rest from farms and towns of less than 1,000 population; 4,877 cases were urban and 436 rural. There was no significant difference in percentages between urban and rural groups. In addition to this survey, the authors point to a grand total of 11,931 examinations, disclosing 16.2 positive. Quoting: "Thus, about one out of every six persons, coming to necropsy over the period represented by the surveys, was infected with *Trichina spiralis*."—[*Willard H. Wright, K. B. Kerr, and Leon Jacobs: Studies on Trichinosis. Pub. Health Rep., 58, (Aug. 27, 1943) : 1293-1313.*]

BOOKS

Medical Radiographic Technique

Having come with leaps and bounds into the practice of veterinary medicine, an understanding of radiography is taking on paramount importance in both hospital and field work, thanks to dogs and race horses. Books covering every detail of Roentgen's historic discovery are, therefore, welcome arrivals to be read and studied, for, neglect of this branch of physics brings failure where knowledge of it achieves success. The x-ray, independent of therapeutic values yet to be measured, is relatively more important in veterinary practice than in human medicine where subjective phenomena come to the aid of the diagnostician. Knowledge of radiographic technique must be thought of in the same vein as knowledge of operative surgery and applied pharmacology, inasmuch as it touches diagnostics, the most significant phase of clinical work. In view of these facts, the Technical Service Department of General Electric X-Ray Corporation renders a useful service to the veterinary profession by publishing this book. The collaboration of 18 x-ray technicians insures completeness, accuracy, and practicability of the text material. It is written for the medical and dental professions. The veterinarian awaits the day when an appendix on the use of x-ray technique in animals will not be thought out of place in books of this sort.

The book has 17 chapters in graphic illustrations. Particularly commended to the veterinary practitioner are the chapters on (1) Fundamental Electrical Concepts, (4) X-Ray Apparatus, (9) Stereoscopy, (10) Planigraphy, (12) Fluoroscopy, and (17) Photography. If you operate an x-ray apparatus or patronize some one who does, this book will be appreciated.—[*Medical Radiographic Technique. By Glenn W. Files in association with 18 collaborators. Cloth. 365 pages. Profusely illustrated. Charles C. Thomas, Springfield, Ill., and Baltimore. 1943. Price $6.00.*]

Nutrition of the Dog

The author stresses the theory that the feeding of dogs ought to be quite an exact science. Except for vitamin C, which the dog fabricates as and if needed, canine and human nutrition are regarded as strikingly similar. The pattern of one may be used for the other. Having come into recorded history from misty antiquity, working and playing and eating with contemporaneous humanity, the dog has been convenient for the experimentalist: quoting, "a great teacher of nutrition and of biology and physiology." Cost, behavior and numbers of dogs are qualifying factors for the field of animal experimentation. The use of dogs therein is praised on the orthodox ground that mankind has been the beneficiary. The canalisations of splanchnic organs by de Graaf (1641-1673) and Claude Bernard (1813-1878) gave us the first insight into the functions of the body secretions. See what Banting accomplished with the canine Islands of Langerhans.

The functions of carbohydrate, protein, fats, minerals, and the micronutrients are well treated with new facts added to both the experimental and economic uses. Though abridged, these are brought abreast of the times.

In the chapter on "Modern Dog Foods", one is told that "Dogs can live on vegetarian diets." Yet, all of the formulas given contain animal products: whey, skimmed milk, beef tallow, pork scraps, lard, cod liver oil, and the meals of meat, bone, liver, fish, and cheese, mixed with vegetables in various amounts. This seems like the old contradiction made in the attempt to prove the dog as herbivorous as the dairy cow.

"Testing Dog Foods" castigates the manufacturers and government agencies for not having made critical tests in keeping with the importance of the commercial dog-food industry, when all that's necessary is (quoting): "An old barn to serve as housing. A man capable of doing rough carpenter work can build the bins, pens, and dog houses." The rest of the equipment needed for classical testing of dog foods is a large pan and a hoe for mixing the feed, scales for weighing ingredients and dogs, and paper and pencil to keep the records. What a transcendency!

"Practical Feeding and Management" is the refreshing and redeeming feature of this book. Here, it soars gracefully along the beam of good advice.

The reviewer, striving to keep faith with veterinary medicine, animal experimentation, and canine zoötechnics will find *Nutrition of the Dog* a difficult book to catalogue. It is paradoxical. In the preface the objective is: "To satisfy the needs of *both the pet owner and the scientist.*" Can any book on experimental physiology do that?

Mind you, this is not a desiccated tome. It is fresh and alive with truth, some new and some brought in from the centuries as if to impress the pet owner with the greatness of science. Does the picture of de Graaf's pancreatic fistula impress the owner of a pet dog to better advantage than a mere statement of the well-known facts about the functions of the pancreatic juice?

The value of an experiment on a living being—mouse, hamster or dog—is no reason for broadcasting and re-broadcasting its *modus operandi.*

We shall let the owner of the dog he adores and the super-sentimental cynophile fill in their own score cards. But because it goes into the details of experimental physiology, this book can't be given the green light outside the bournes of its own highways.

Animal experimentation contains many a stirring page, as dramatic as the writings of Voltaire and Franklin, but useful as they are, they should not be circulated beyond the estate they cultivate, least of all among the owners of adored household pets. [*Nutrition of the Dog. By Clive M. McCay. Cloth. 140 pages. Illustrated. Comstock Publishing Company, Inc. 1943. Price, $1.50.*]

Rehabilitation of the War Injured

Large scale rehabilitation of the wounded, started through the tremendous number of casualties of World War I, has taken new form and enlarged scope in World War II. Except for unconfirmed figures coming out of the Russian front, World War I still holds the record for casualty rates per personnel engaged in combat duty. The butchery on both sides at the Verdun, St. Mihiel, and Argonne sectors in 1916 is still outstanding. The number of permanently disabled, loosed to civil life for postwar attention, was appalling enough to mobilize medical thought and transform it into action. In view of these presents and the advance made by medical science during twenty-five interwar years, it is natural that a book devoted to the subject of rehabilitation (physical and mental) should be published now. There is a lot of manpower to preserve, a lot of deformity to prevent, and an endless file of cripples to avoid. With changes in ordnance and in warfare which now expose the general population to wholesale injury, the question of rehabilitation comes closer to all of the homes, not only to the relatives of the fighting man. This book covers neurology and psychiatry, plastic surgery, orthopedics, physiotherapy, occupational therapy, and the legal aspects of rehabilitation. Each subject is treated by selected specialists in these branches of medicine and surgery. Within these subjects there are too many subheads to list here, and it would be presumptuous to criticize the techniques of these prominent figures of the medical profession.

There seems to be reason, however, to point out that the chapter of 61 pages on orthopedics and the 40 pages on jaw reconstruction make no mention of the Stader device which is now extensively used by the armed forces. Leg-lengthening is still attempted with the complicated contraptions of the "old school," notwithstanding the use of the "Steinman nails," pulleys and weights, has been improved, as judged by the literature in the field which contain parts that this book covers. Is it possible that this device is not even mentioned because it was invented by a veterinarian? Narrow views can no more pave the way to broad objectives in medicine than in other fields. It's pretty much like the doctor riding on the solid tires of the horse-drawn buggy because a veterinarian invented the pneumatic sort, like high-hatting insect vectors because the D.V.M.'s were first to insist that bugs do have a place in etiology, or like discounting Sister Kenny's local treatment of infantile paralysis. Medicine has allied branches which learn things and do things of possible benefit to mankind.

Now that we are in the midst of a global war with prospects that millions will be injured, to live on beyond the date of the coming peace conference, the "rehabilitation of the injured" can have no peer among postwar problems. It is fortunate that men of science set the problem apart as a special branch of medical practice. The grouping of war injuries for study, *per se*, is a timely and worthy undertaking, which is interesting, fascinating and useful. [*Rehabilitation of the War Injured. A symposium edited by William Brown Doherty, M.D., and Dagobert D. Runes, Ph.D. 684 pages. Cloth. Well illustrated. Philosophical Library, Inc., New York, 1943. Price $10.00.*]

Corrigendum

I should like to call to your attention the review in your December issue of the Annual Review of Biochemistry, pp. 396, in which you indicate the publisher to be the American Physiological Society. This is incorrect as the publisher is the Annual Reviews, Inc., Stanford University, P. O., California.

S/BARBARA DAVEY,
Secretary to Dr. Luck.

The Monthly "Veterinary Science Newsletter"

The editorial staff furnishes the Office of War Information a monthly report on veterinary science in the United States for distribution among veterinarians and veterinary institutions of forty or more of the United Nations. The copy of the "Letter" goes to the New York office of the OWI for translating, printing, and mailing. The purpose is explained in the preamble (q. v.).

Inasmuch as requests from members for copies have been numerous and circulation within the Continental United States is not permitted under the present regulations, a facsimile of Veterinary Science Newsletter, No. 6 is printed below, in original form, as a matter of information. Contributions to this "Letter" from all branches of the veterinary service are solicited.—L. A. M.

* * *

S–3598
Veterinary Science No. 6

VETERINARY SCIENCE NEWSLETTER

The war has disrupted the world-wide exchange of information on progress in all fields of science. Research does continue, however, and to keep you informed of the work being done in the United States in the field of veterinary science, this communication has been prepared by the American Veterinary Medical Association. A similar communication will reach you once a month.

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LOSS OF FOOD POUNDAGE FROM LIVESTOCK DISEASES

The University of Illinois held a conference of veterinarians in October, 1943, to discuss the diseases of farm animals which cause the greatest loss of food poundage. The problem was discussed by 130 veterinarians conducting large practices throughout the state. Vital statistics showed that hog cholera, swine enteritis, swine erysipelas, swine and bovine brucellosis, baby pig anemia, iodine deficiency (inapparent goiter), plant poisonings, pullorum disease of baby chicks, high mortality of laying hens and the shortage of animal proteins for swine and poultry were the main problems to be mastered in the emergency of war. The importance of prompt action against outbreaks of infectious diseases was stressed, and modern methods of prophylaxis and treatment taken up.—(Proceedings War Emergency Conference on Swine Diseases, University of Illinois, October 6, 1943.)

* * *

THE VIRUS OF A CHRONIC RESPIRATORY DISEASE OF CHICKENS PROPAGATED IN CHICK EMBRYOS

A virus not before described was isolated from adult chickens affected with a chronic bronchitis. Over 5,000 laying hens were studied. Neither Hemophilus gallinarum nor the bipolar organism of chronic fowl cholera was found. Nasal exudates, respiratory rales and loss of weight were the predominating symptoms. The morbidity was 30 to 50 per cent and the mortality low. The virus was obtained from the lower trachea and studied by egg-inoculation through 35 passages. The egg-propagated virus was capable of producing the typical symptoms in mature chickens. Young chickens developed only a coryza. Fowl immune to laryngotracheitis and infectious bronchitis were susceptible but resisted reinfection from the virus, showing that there was no cross immunity. —(American Journal of Veterinary Research: October, 1943.)

* * *

HERMAPHRODITISM IN GOATS

Studies of hermaphroditism in Saanen and Toggenburg goat kids carried out by the Bureau of Animal Industry, U. S. Department of Agriculture, strongly confirmed the hereditary basis of this abnormality and indicated that hermaphroditism, hypospadias and cryptorchidism are traceable to faulty hormonal conditions at the time of sex differentiations. The three are closely allied. The heredity has obviously the nature of a gene regulating development of the cells responsible for hormone secretion. The gene's recessive allelomorph is the disturbing factor.—(American Journal of Veterinary Research: October, 1943.)

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STREPTOCOCCAL BOVINE MASTITIS

Clinical tests of udder infusions are the most extensively studied part of the problem of bovine mastitis. Being the most widespread bovine malady and the one having the greatest bearing on public health, the results obtainable from local antiseptic treatment have economic and hygienic significance. The flora of the affected udders was studied before treatment. Six commercial dairy herds containing 485 cows were treated. Acriflavin, entozon, colloidal silver oxide (novoxil) and tyrothricin were tested, in the usual manner of instilling drugs into the galactophorus sinus. Treatment showed an efficiency of 77.6 percent: for acriflavin 89.3; for entozon 60; for colloidal silver oxide 71.4; and for tyrothricin, 51.4 percent.—(American Journal of Veterinary Research: October, 1943.)

* * *

ACUTE TOXEMIC MASTITIS IN COWS

The association of Aerobacter aerogenes with coliform organisms in acute bovine mastitis is described by Burkhardt, Beach and Spencer of the University of Wisconsin in four aged Holstein-Friesian cows. The attack was sudden. Deep depression and swelling of one or more quarters were present at the onset. The milk was flaky and straw-colored, the swellings hard, the temperature from 103.2 to 107.2 F. (39.6 to 41.8 C.) and loss of weight rapid. Other symptoms were cold muzzle and extremities, rapid breathing and anorexia. After the first week, seven more cows of the herd became affected.

The cows were given sulfanilamide orally at the rate of one grain per pound of body weight (1-7 grain per kilogram), divided in three doses, that is, at eight-hour intervals. Two of the more severe cases received intravenous injections of dextrose, 50 per cent in 1,000 cc. doses for two days and intra-udder infusions of neoprontosil. Cows treated early were affected but four days, while in the others the course run 10 to 18 days. The treatment included frequent milking and supportive treatment.—(Journal of the American Veterinary Medical Association: December, 1943.)

* * *

DIAGNOSIS OF FOX AND MINK DISTEMPER

Since foxes and mink are raised under conditions favorable for the spreading of distemper, an accurate method of diagnosis is essential to the treatment of the disease. Although inclusion bodies usually occur in the epithelial cells of the trachea and bladder, these bodies have also been found in animals showing no symptoms of the disease. Therefore, history, symptoms, and post-mortem findings, other than inclusion bodies, are essential in arriving at an accurate diagnosis.—(American Journal of Veterinary Research: July, 1943.)

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SULFONAMIDES IN CALF SCOURS AND PNEUMONIA

Sulfapyridine, sulfathiazole, sulfadiazine in pneumonia and sulfaguanidine and sulfasuxidine in scours were studied therapeutically. Chemical studies were made of the blood, urine and feces of the experimental calves. Each drug was studied for its toxicity, in a total of 69 cases of pneumonia and 84 cases of scours. Sulfanilamides, especially sulfaguanidine and sulfasuxidine, were found to have an antibacterial effect on the coliform flora of the gastrointestinal tract of calves affected with these diseases.—(American Journal of Veterinary Research: October, 1943.)

* * *

EXPERIMENTS IN RESISTANCE TO FOWL SARCOMA, STRAIN 13

Fowl sarcoma, strain 13, is a spindle-cell type that is easily transplanted by tumor transplants or filtrates of tumor tissue. When injected intramuscularly, it produced tumor at the site of injection; intravenously, it produced sarcomatosis of the liver, spleen and bone marrow. Some chickens were resistant; in others, the tumor either did not progress or it regressed.

From seven different experiments, 12 resistant chickens were found. Two of them did not develop tumors and 10 developed tumors that did not progress rapidly. They lived long enough for reinjection. Most of them were injected in the muscles of the breast and reinjected into the skin of the wattles and wing webs, and in a few instances, intramuscularly. Two chickens, negative to the original injection, developed small tumors from later injections. Those having small tumors usually failed to develop tumors on reinjection. The experiment showed that certain chickens carrying tumors experimentally produced resist further injections.—(American Journal of Veterinary Research: October, 1943.)

* * *

NODULAR WORMS OF SHEEP

The nodular worm (Oesophaostomum radiatum) is estimated to cost sheep raisers $6,000,000 annually in the United States from intestines damaged beyond use for making catgut, and accounts for the loss of 100,000,000 pounds (45,000 tons) of mutton. Due to the early use of phenothiazine, much of this menace is now being removed along with losses from stomach worms (Haemonchus contortus). A single dose of phenothiazine followed up by giving sheep access to a salt lick, one part to six of salt, during the pasture season, removes much of the worm hazard in sheep husbandry.—(Iowa Veterinarian: November-December, 1943.)

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BOVINE TUBERCULOSIS ERADICATION A PATTERN FOR THE CONTROL OF TUBERCULOSIS IN MAN

In Continental Europe and Great Britain, the incidence of bovine tuberculosis ranges from 35 to 45 per cent. Increased production and shortage of feed may increase the incidence of the bovine form in man along with its increase in dairy cows. In the United States, where the test and slaughter method is employed in a large bovine population, the percentage of tuberculous animals has been reduced to less than 0.1 per cent for the whole country. Many regions have no tuberculosis among their cattle. (Among 212,000 cows in Los Angeles County, California, the 1943 survey showed but 0.045 per cent.—Editor). These achievements point the way for human tuberculosis control. The tubercle bacillus is not ubiquitous, nor airborne. It is associated with infected persons and their immediate surroundings, and contagious tuberculosis is associated mainly with adult life. As in children, young animals do not transmit the disease. The value of quarantine was demonstrated by keeping tuberculous animals from crossing international boundaries. As in man, attempts at artificial immunization were negative, and the merits of the tuberculin test for diagnosis was amply proved. Improved methods of detecting the disease have reduced the number of no-lesion reactors. The pattern is recommended for application in the control of human tuberculosis, the trial made in Meeker County, Minnesota, justifying the attempt.—(Meyer, J. A.: Proceedings 45th Annual Meeting, U. S. Live Stock Sanitary Association, Chicago, December, 1942.)

* * *

VACCINATION AGAINST LARYNGOTRACHEITIS OF FOWL

Painting the mucous membrane of the cloaca with the live virus of the disease provokes a local inflammation on the second day. The reaction increases each day, reaches the maximum on the fifth day, and by the ninth day subsides. Fowl passing through this reaction are quite as immune as fowl that have recovered from an attack of the disease. There is no more danger of the virus of vaccinated fowl passing to the respiratory tract than the cloaca being infected in the naturally affected bird. Therefore, the vaccinated birds do not die and fortunately do not become carriers. Impotent virus is dangerous because only the "takes" are immunized and the remainder spread the disease to the rest of the flock. Impotent virus is the greatest cause of poor results.—(Proceedings 45th Annual Meeting, U. S. Live Stock Sanitary Association, Chicago, December, 1942.)

LOCOMOTORY INCOORDINATION IN SWINE

The nerve degeneration manifested by the pronounced locomotory incoördination common in growing swine was traced to a deficient intake of pantothenic acid and pyridoxine (vitamin B_6), according to a paper presented to the annual meeting of the American Association of Animal Production at Chicago in December, 1943. The experiments described show the relationship of these factors to

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the locomotory disorder. Calcium pantothenate added to the diet reduced the incidence of the trouble, but full protection required the addition of pyridoxine and the amine choline to the purified diets used. In effect, however, the conclusion was that subnormal pantothenic acid intake is primarily responsible for locomotory incoördination in swine.—(Journal of Animal Science: November, 1943.)

* * *

LONG DISTANCE SHIPPING OF SEMEN

Long distance shipping of dairy-bull semen is being regularly practiced in the United States. By ordinary means, shipment of semen requires forty-eight hours or longer and keeping the sample at a temperature between 35 and 45 F. (2 and 7 C.) during that period to preserve its potency.

Owing to the prospect of making continent to continent shipments of semen after the war, studies of this subject have been made at the Missouri and New York agricultural experiment stations. Studies of packaging have resulted in desirable storage temperatures being maintained for more than 80 hours in atmospheric temperatures between 80 and 90 F. (27 and 32 C.). In 24 shipments made, the semen samples arrived at their destination in a condition comparable to storage for the same time in the refrigerator at 40 F. (4 C.). Twelve cows have been inseminated and eight conceptions resulted from properly packaged semen samples, inseminated after forty-eight to 130 hours in transit, while of six samples in storage more than 144 hours, none were successful. —Journal of Animal Science: November, 1943.)

* * *

CORN COBS AS CATTLE FEED

The value of corn cobs in fattening steers was tested at the Ohio Agricultural Experiment Station, Wooster, Ohio. Three lots of group-fed, 20 per group, weighing 450 pounds (204.1 kg) each, were fed 252 days starting in December. Two pounds (0.9 kg) of soybean meal with minerals added were fed daily, along with mixed clover and timothy hay. To one lot of the steers, ground shelled corn was fed; to another, ear corn; and to the third group, corn-and-cob meal containing additional cob meal was fed. The average daily gains were 1.97, 1.99 and 1.93 pounds, respectively (.894, .903 and .875 kg). The highest selling price and dressing percentage accrued from the group that had received the shelled corn in the grain ration, although feed efficiency favored the cob-fed group. Similar feeding of three individual calves gave the same results as in the group-fed.—(Journal of Animal Science: November, 1943.)



Pin-up picture for the man who "can't afford" to buy an extra War Bond!

YOU'VE HEARD PEOPLE SAY: "I can't afford to buy an extra War Bond." Perhaps you've said it yourself . . . without realizing what a ridiculous thing it is to say to men who are dying.

Yet it *is* ridiculous, when you think about it. Because today, with national income at an all-time record high . . . with people making more money than ever before . . . with less and less of things to spend money for . . . practically every one of us has extra dollars in his pocket.

The very *least* that *you* can do is to buy an *extra* $100 War Bond . . . above and beyond the Bonds you are now buying or had planned to buy. In fact, if you take stock of your resources, you will probably find that you can buy an *extra* $200 . . . or $300 . . . or even $500 worth of War Bonds.

Sounds like more than you "can afford?" Well, young soldiers can't afford to die, either . . . yet they do it when called upon. So is it too much to ask of us that we invest more of our money in War Bonds . . . the best investment in the world today? Is that too much to ask?

Let's all BACK THE ATTACK



JOURNAL OF THE
AMERICAN VETERINARY MEDICAL ASSOCIATION

This is an official U. S. Treasury advertisement—prepared under auspices of Treasury Department and War Advertising Council

351-T 5 1-2 x 8 in. 110 Screen

THE NEWS

Radio "Livestock Health Forums"

The series of radio programs on livestock health, which are being sponsored by state and provincial veterinary associations throughout the country, were inaugurated in a number of states early in January (*See* the January JOURNAL, pp. 47-48). Other states are getting under way with the broadcasts as fast as arrangements are completed; their schedules will be published in the March JOURNAL.

In about half of the states reporting to date, the series has been given the name "Livestock Health Forum" and the talks constitute a part of some regularly scheduled farm program. In many instances, the project is under the joint sponsorship of the state veterinary associations, their respective state livestock sanitary officials, veterinary science departments or extension services.

Following are the names of stations carrying the programs, their locations, and the times at which the talks can be heard.

Partial Schedule of State Association Broadcasts

STATE	STATION	LOCATION	DAY OF WEEK	TIME	NAME OF PROGRAM
Alabama	(WAPI	Birmingham	Every	12:45 p.m.	"Auburn Farm and Family
	(WCOV	Montgomery	Thursday	12:45 p.m.	Forum"
Florida	WRWF	Gainesville	Every other Wednesday	12:00-1:00 p.m.	"Florida Farm Hour"
Idaho	KIDO	Boise	Every Wednesday	12:45 p.m.	"Riley Atkinson Farm Program"
Indiana	WFBM	Indianapolis	Every Monday	12:30-1:00 p.m.	"Hoosier Farm Circle"
Iowa	WHO	Des Moines	Every other Saturday	11:30 a.m. or 1:15 p.m.	"Corn Belt Farm Hour" "Better Farming"
Kansas	KFH	Wichita	Every other Friday	6:50 a.m.	"Old Traders and Farm News"
Kentucky	WHAS	Louisville	Every Saturday	11:30-12 a.m.	"The American Farmer"
Mass.	(WBZ	Boston	Various dates	6:35 a.m.	"New England Farm Hour"
	(WBZA	Springfield			
Michigan	WKAR	East Lansing	Every Tuesday	1:30-1:45 p.m.	"Diseases of Farm Animals"
Minnesota	WLB	St. Paul-Minneapolis	Every Friday	12:50 p.m.	"University Farm Hour"
N. Car.	WPTF	Raleigh	Every Monday	1:15 p.m.	"Connie Gay Farm Program"
North Dakota	(WDAY	Fargo	Every Tuesday	6:15 a.m.	"Agriculture in the News"— (N. Dak. Extension Service)
	(KFYR	Bismarck	Every Tuesday	6:30 a.m.	
	(KILO	Grand Forks	Every Tuesday	7:00 a.m.	
	(KSJB	Jamestown	Every Tuesday	7:00 a.m.	
New York	WEAF	New York	Every Monday	6:30-7:00 a.m.	"Modern Farmer"
Ohio	WOSU	Columbus	Every Monday	12:00 noon	"Ohio Farm and Home Hour"
Oklahoma	KOMA	Oklahoma City	Every Saturday	6:45 a.m.	"Keeping Livestock Healthy"
Oregon	KXL	Portland	Every Wednesday	12:45 p.m.	"Agriculture"
Rhode Island	WPRO	Providence	Every Saturday	8:45 p.m.	"Agricultural Digest"
Utah	KSL	Salt Lake City	Every Monday	12:45 p.m.	

Veterinarians Praised on NBC Network for Work In Tuberculosis Eradication

At the conclusion of the "Amos 'n' Andy" program over the coast-to-coast NBC Network on the evening of Dec. 10, 1943, the announcer, Harlow Wilcox made the following special announcement:

"We all know that the beautiful Christmas Seals which grace millions of letters and packages at this time of the year are more than mere decoration . . . that they are in reality the expression of the generosity of a nation's heart. For the Christmas Seals you buy are among the most effective weapons against tuberculosis. But there's an interesting and not too well known story behind the fight against the great white plague. Did you know that the war waged against tuberculosis owes much of its success to the veterinary profession? Yes, not only did veterinarians join with the medical profession in efforts to stamp out tuberculosis in man and beast but they have pioneered many advances in the scientific attack on the disease, including the eradication of bovine tuberculosis. We can thank the veterinarians for the safe, pure milk we drink. Through their efforts the tubercular cow is nearly as extinct as the dodo bird. I just thought you'd be interested in that sidelight on the organized campaign to stamp out human suffering. . . Physicians and veterinarians on the one hand—you and your purchases of Christmas Seals on the other! What a privilege you have to do your share in this great fight—merely by buying Christmas Seals."

This program, which is sponsored by Lever Brothers Company of Cambridge, Mass., manufacturers of "Rinso" and other soap products, was also broadcast by short wave all over the world. Those who heard the special announcement regard it as a very fine and timely tribute to the work of the veterinary profession in its activities significant to human health.

L. M. Hurt Elected to Executive Board

Polls for the special election of a member of the Executive Board from District VI (Arizona, California, Canal Zone and Central America, Colorado, Mexico, Nevada, New Mexico and Utah) closed on Jan. 8, 1944. Drs. W. A. Young and E. R. Maschgan of Chicago served as a board of tellers to count the ballots and certified the election of L. M. Hurt, Sierra Madre, Calif. Dr. Hurt will fill the unexpired term ending in 1946, the vacancy having been created by the selection of Dr. James Farquharson as president-elect of the AVMA at the 1943 annual meeting.

Dr. Hurt will not be a new-comer to the Board, having previously served one full term from 1931-1936. He has also served the Association in other capacities, notably as a member of the Committee on Education since 1940.

Dr. Hurt received his veterinary degree at Iowa State College in 1904 and joined the AVMA in 1908. For a number of years he has been in charge of the Los Angeles County Livestock Department.

Nominations for Humane Act Award Invited

Dr. W. A. Young, chairman of the Special Committee on Humane Act Award, recently addressed a letter to several national organizations inviting nominations for the award to be made in 1944 to the boy or girl finally selected by the Committee for work in behalf of kindness to animals. Boys and girls not beyond 18 years of age are eligible. The award will be given in recognition of some outstanding act or work done by the boy or girl. It need not be a rescue.

The award, which was authorized by the AVMA House of Representatives, will be in the form of a suitable scroll and will be presented by an official representative of the Association in the district where the winner lives and in his home town or a nearby city. The presentaton ceremonies will be participated in by local humane societies, veterinarians, and other civic-minded groups and will probably take place in a high school assembly.

The following organizations or individuals are eligible to make *one* nomination: each humane society; each accredited veterinary school; each 4-H Club; each chapter of Future Farmers of America; each Boy Scout troop; each Girl Scout troop and each Camp Fire Girl organization. In addition, every member of the AVMA is entitled to make one nomination.

All nominations should be addressed to the Special Committee on Humane Act Award, American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill., and must be accompanied by a letter identifying the nominee and setting forth what he has done to deserve the nomination.

Nominations to be considered for this year's award must be in the AVMA office not later than April 30, 1944. The award, which will be an annual one, is being announced for its first presentation. The members of the Award Committee in addition to Chairman Young, who is managing director of The Anti-Cruelty Society in Chicago, are Dr. E. P. Schroeder, Boston, of the Massachusetts S.P.C.A., and Dr. S. T. Michael of the San Francisco S.P.C.A.

Can You Help Locate These Lost Members?

The aid of JOURNAL readers is solicited in locating the following members, mail to whom has been returned to the Association's central office. The last known address of each is given. Should you be able to provide information as to present residence, your advice *via* postcard or letter will be greatly appreciated.

Cady, Duane L., 21st Hdqs., Med. Serv. Gpe., Camp Ellis, Ill.

Calhoun, William H., Huxley, Iowa.

Cook, C. E., Mira Mar Hotel, 6212 S. Woodlawn Ave., Chicago, Ill.

Corcoran, James B., 7 N. E. 9th St., Oklahoma City, Okla.

Cowart, Ray R., Arlington, Ga.

Dixon, James T., South Main, Winston-Salem, N. Car.

Hall, Howard H., Spooner, Wis.

Holtzman, Jacob, Station Hosp., Army Air Base, Fort Douglas, Utah.

Ingram, H. E., c/o Swift & Co., 2300 S. Lamar, Dallas, Texas.

Jenkins, O. B., Box 285, Searcy, Ark.

Jones, G. M., 2407 E. Sixth St., Tucson, Ariz.

Martin, Jerry T., Mira Mar Hotel, 6212 Woodlawn Ave., Chicago, Ill.

Miller, W. E., c/o College Inn Food Products Co., 4301 S. Ashland Ave., Chicago, Ill.

Morris, Olin W., 131 W. 4th, Junction City, Kansas.

Siver, Dougal, 429 Wrightwood Ave., Chicago, Ill.

Stout, Robert W., 6212 Woodlawn Ave., Chicago, Ill.

Taylor, C. Edward, 607 S. Park View St., Los Angeles, Calif.

Traskus Anthony D., 511 Meldrum, Ft. Collins, Colo.

Young, James B., 1233 Dryades St., New Orleans, La.

APPLICATIONS

The listing of applicants conforms to the requirements of the administrative by-laws—Article X, Section 2.

First Listing

ADDISON, JOSEPH R.
55 Elizabeth St., Kingston, N. Y.
D.V.M., Indiana Veterinary College, 1916.
Vouchers: P. P. Poley and S. K. Nelson.

CHAMBERS, CLIVE B.
Heuvelton, N. Y.
D.V.M., Cornell University, 1935.
Vouchers: A. R. DeMott and W. A. Dennis.

CLAIRE, CARL J.
15 Carlton Way, Tracy, Calif.
D.V.M., Washington State College, 1931.
Vouchers: R. H. Scofield and C. E. Wictor.

HEYDECKER, LOUIS F.
6708 U. S. Highway No. 69, Overland Park, Kansas.
D.V.M., Kansas City Veterinary College, 1915.
Vouchers: A. Lockhart and C. W. Bower.

PFARR, PHILIP J.
212 Olsen St., Pullman, Wash.
D.V.M., State College of Washington, 1940.
Vouchers: G. J. Freiermuth and J. E. McCoy.

ROMINE, M. J.
445 W. 70th St., Chicago 21, Ill.
D.V.M., Indiana Veterinary College, 1921.
Vouchers: G. M. Smith and W. G. Reed.

ROSTETTER, G. A.
Newton, Kansas.
D.V.M., McKillip Veterinary College, 1916.
Vouchers: R. F. Coffey and C. W. Bower.

SANDERS, ORAL M.
1101 S. Johnston, Ada, Okla.
D.V.M., Texas A. & M. College, 1943.
Vouchers: D. H. Ricks and S. R. Espy.

STANLEY, GEORGE E.
Blair, Neb.
D.V.M., St. Joseph Veterinary College, 1918.
Vouchers: J. R. Snyder and J. D. Sprague.

WEIGHT, LESLIE A.
1911 Kalanianaole Dr., Hilo, Hawaii, T. H.
D.V.M., Cornell University, 1935.
Vouchers: L. C. Moss and E. H. Willers.

Second Listing

Boynton, James W., 299 Central Park Ave., Yonkers, N. Y.

Brandon, Glen C., Station Hosp., Camp Campbell, Ky.

Varas, Catala Juan, U. S. B.A.I., P. O. Box 844, San Juan, P. R.

De Souza, Roberto, Escola Superior de Veterinaria, Caixa Postal 567, Gameleira, Belo Horizonte, Brazil.

Frahm, E. W., 39 W. Maine, Milan, Mich.

Gapuz, Domingo B., Box 24, Campus Station, Cincinnati, Ohio.

Gollehon, C. W., c/o Station Hosp., Salinas, Calif.

Maas, E. E., U. S. B.A.I., P. O. Box 844, San Juan, P. R.

O'Flaherty, Fred, c/o University of Cincinnati, Cincinnati, Ohio.

Pou, A. C., P. O. Box 363, Ponce, P. R.

Riemenschneider, M. N., Salida, Colo.

Wilwerth, A. M., Escola Superior de Veterinaria, Caixa Postal 567, Gameleira, Belo Horizonte, Estado de Minas, Brazil.

BUY MORE IN '44

Liberty, fraternity, equality may be procured at the War Bond counter.

The eye of the soldier and sailor is focused with knitted brow on the queue at the War Bond window.

1943 Graduate Applicants

First Listing

The following are graduates who have recently received their veterinary degrees and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

Colorado State College

HOERLEIN, B. FRANKLIN, D.V.M.
Kansas City Quartermaster Depot,
Kansas City, Mo.
Vouchers: I. E. Newsom and J. Farquharson.

Iowa State College

BAKER, D. L., D.V.M.
517 4th St., Rockwell City, Iowa.
Vouchers: C. H. Covault and H. D. Bergman.

BICEK, ERNEST K., D.V.M.
440 E. Craig Ave., Tracy, Minn.
Vouchers: G. R. Fowler and E. A. Benbrook.

FOLEY, EDWARD J., D.V.M.
Cottonwood, Minn.
Vouchers: I. A. Merchant and G. R. Fowler.

HOYT, ROBERT H., D.V.M.
Deer Creek, Minn.
Vouchers: C. Murray and H. D. Bergman.

LYNCH, WILLIAM M., D.V.M.
Box 227, Lehigh, Iowa.
Vouchers: G. R. Fowler and C. H. Covault.

MOORE, MAURICE JR., D.V.M.
162 Union Ave., Batavia, Ill.
Vouchers: G. R. Fowler and D. E. Jasper.

STOENNER, HERBERT G., D.V.M.
c/o Mr. Ernst Stoenner, R.F.D. 1, Sibley, Mo.
Vouchers: E. A. Hewitt and H. D. Bergman.

UNDERBJERG, GRAVERS K. L., D.V.M.
Veterinary Research Institute,
Iowa State College, Ames, Iowa.
Vouchers: C. Murray and S. H. McNutt.

VEGORS, MASON M., D.V.M.
Webster City, Iowa.
Vouchers: H. D. Bergman and G. R. Fowler.

VOLLMAR, WARREN W., D.V.M.
Montgomery, Minn.
Vouchers: E. A. Hewitt and H. D. Bergman.

Michigan State College

AMSIEJUS, JULIUS, D.V.M.
R.F.D. No. 1, Salem Rd., Pelham, N. H.
Vouchers: J. P. Hutton and E. K. Sales.

AYRES, PAUL E., D.V.M.
2065 Lochmoor Blvd., Grosse Pointe Woods, Mich.
Vouchers: F. Holtz and J. P. Hutton.

BREKKE, ALFRED E., D.V.M.
R.F.D. No. 1, Wittenberg, Wis.
Vouchers: J. P. Hutton and E. K. Sales.

BROOME, ALFRED O., D.V.M.
7415 Keeler, Detroit 21, Mich.
Vouchers: C. F. Clark and F. Thorp, Jr.

BUCHHOLZ, HARVEY H., D.V.M.
Wilton, Wis.
Vouchers: C. F. Clark and F. Thorp, Jr.

CARR, GLENWOOD F., D.V.M.
Metamora, Ohio.
Vouchers: J. H. Lenfestey and E. C. W. Schubel.

CASWELL, DONALD E., D.V.M.
317 W. Main, North Adams, Mich.
Vouchers: F. E. Caswell and J. P. Hutton.

CHAPMAN, JOHN H., D.V.M.
512 Harvard Pl., Ontario, Calif.
Vouchers: J. P. Hutton and E. K. Sales.

COOHON, DONALD B., D.V.M.
212 Jean Ave., Sturgis, Mich.
Vouchers: C. F. Clark and F. Thorp, Jr.

COOPER, ARTHUR W., D.V.M.
253 Rhode Island Ave., Highland Park 3, Mich.
Vouchers: J. P. Hutton and E. K. Sales.

CUSTER, FRANKLIN D., D.V.M.
R.F.D. No. 2, Oakland, Md.
Vouchers: J. P. Hutton and E. K. Sales.

DAVENPORT, LEROY, D.V.M.
770 Holly Ave., St. Paul, Minn.
Vouchers: J. P. Hutton and E. K. Sales.

DIBBLE, GIPSON D., D.V.M.
R.R. No. 3, Homer, Mich.
Vouchers: J. P. Hutton and E. K. Sales.

ENGEL, VICTOR F., D.V.M.
325 Main St., Frankenmuth, Mich.
Vouchers: J. P. Hutton and C. F. Clark.

FARNSWORTH, LAURISTON B., D.V.M.
Lakeview, Mich.
Vouchers: J. P. Hutton and L. B. Sholl.

HOTCHKISS, PHILIP M., D.V.M.
Main St., Niantic, Conn.
Vouchers: J. P. Hutton and L. B. Sholl.

JEHLE, C. JACK, D.V.M.
Grand Blanc, Mich.
Vouchers: J. P. Hutton and L. P. Hedeman.

LARSON, ROY G., D.V.M.
Box 675, Stambaugh, Mich.
Vouchers: J. P. Hutton and C. F. Clark.

SCHILLER, ALFRED GEO., D.V.M.
Irma, Wis.
Vouchers: C. F. Clark and F. Thorp, Jr.

SHARRARD, PARKER E., D.V.M.
Chelsea, Mich.
Vouchers: C. F. Clark and E. K. Sales.

STERNER, EDWARD F., D.V.M.
Ionia, Mich.
Vouchers: L. B. Sholl and E. K. Sales.

SULLIVAN, DAVID J., D.V.M.
13375 Terry Ave., Detroit 27, Mich.
Vouchers: J. P. Hutton and L. B. Sholl.

VIGUE, R. F., D.V.M.
45 Halifax St., Waterville, Maine.
Vouchers: J. P. Hutton and E. K. Sales.

WATERFALL, CLARK, D.V.M.
110 W. Jackson St., Columbia City, Ind.
Vouchers: J. P. Hutton and E. K. Sales.

WATSON, L. B., D.V.M.
R.R. No. 5, Box 16, Coldwater, Mich.
Vouchers: L. P. Hedeman and J. P. Hutton.

WEBSTER, HARRIS D., D.V.M.
1800 Ray St., Lansing, Mich.
Vouchers: C. F. Clark and F. Thorp, Jr.

WISE, GILBERT H., D.V.M.
927 Colvin Ave., S.E., Grand Rapids, Mich.
Vouchers: C. F. Clark and F. Thorp, Jr.

Ohio State University

All of the following were vouched for by Drs. W. F. Guard and P. A. Soldner, with the exception of those otherwise noted.

BEARDSLEY, DAVID S., D.V.M.
249 Walnut St., Geneva, Ohio.

BECKER, PAUL JR., D.V.M.
Rt. No. 1, Defiance, Ohio.

BOOHER, HOWARD E., D.V.M.
530 Wood St., Piqua, Ohio.

BOYD, WAIVE O., D.V.M.
R.F.D. No. 5, Millersburg, Ohio.

BREWER, JAMES A., D.V.M.
Rt. No. 2, Fairmount, Ind.

CATCOTT, EARL J., D.V.M.
Veterinary Lab., Ohio State University, Columbus, Ohio.

CATES, JOHN P., D.V.M.
Modoc, Ind.

CHADWICK, RALPH D., D.V.M.
1011 W. Main St., Crawfordsville, Ind.

CORNETT, HARRY D., D.V.M.
Morrow, Ohio

DANIS, JOHN E., D.V.M.
3013 Clark Ave., Cleveland, Ohio.

DIESEM, CHARLES D., D.V.M.
328 N. Market St., Galion, Ohio.

DIXON, GEORGE F., D.V.M.
125 N. Main St., St. Marys, Ohio.

ELLIOTT, HERBERT B., D.V.M.
West Mansfield, Ohio.

ENDERLE, WAYNE W., D.V.M.
Huron, Ohio.

ERDMANN, ARDEN, D.V.M.
8241 Kilpatrick Ave., Skokie, Ill.

EVANS, RALPH W., D.V.M.
R.F.D. No. 1, Creston, Ohio.

FARMER, J. HUDSON, D.V.M.
Rt. No. 1, Buechel, Ky.

FIREOVED, RALPH, D.V.M.
Mendon, Ohio.

FISHER, ROBERT I., D.V.M.
Rt. No. 1, Chesterland, Ohio.

FOLSOM, ROBERT H., D.V.M.
55 E. Woodruff Ave., Columbus, Ohio.

GLASS, HOWARD, D.V.M.
740 N. Limestone St., Springfield, Ohio.

GREEN, LAWRENCE E., D.V.M.
Box 27, Shadyside, Ohio.

GREENLEE, ALLAN M., D.V.M.
1522½ N. Fourth St., Columbus 1, Ohio.

GROSSMAN, RICHARD W., D.V.M.
302 N. Main St., Mt. Vernon, Ohio.
Vouchers: J. D. Grossman and C. Westerfield.

HANSBERGER, CHARLES H., D.V.M.
R.F.D. No. 1, Millersport, Ohio.

HOPPING, J. L. JR., D.V.M.
1035 Marietta St., Atlanta, Ga.

JACOBS, HAROLD D. JR., D.V.M.
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JONES, DAVID O., D.V.M.
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KOCHER, RALPH, D.V.M.
Rt. No. 2, Lancaster, Ohio.

LANTIS, GEO. W. JR., D.V.M.
537½ Locust St., Quincy, Ill.

LITTLE, PAUL, D.V.M.
604 E. Washington St., Greensburg, Ind.

LLOYD, KENNETH E., D.V.M.
Cedarburg, Wis.

MCBRIDE, DWIGHT M., D.V.M.
Rt. No. 3, Bucyrus, Ohio.

MCKEE, JAMES O., D.V.M.
LaCenter, Ky.

MACDONALD, D. GEORGE, D.V.M.
2692 Knox St., Gary, Ind.

MILLER, CHAS. W., D.V.M.
201 Columbus St., Crestline, Ohio.

MOORE, JOHN F., D.V.M.
R.R. No. 3, Box 325, Cincinnati, Ohio.

MOORE, JOHN W., D.V.M.
c/o American Presbyterian Bd. of Foreign Missions, India Office, 156 Fifth Ave., New York, N. Y.

NICKELL, VERNIE L., D.V.M.
538 S. Maple, Winchester, Ky.

OLDS, DURWARD, D.V.M.
568 Middle Rd., Conneaut, Ohio.

PLEASANT, GEORGE E., D.V.M.
641 N. Main St., Kenton, Ohio.

RANCK, WESLEY A., D.V.M.
2363½ N. High St., Columbus, Ohio.

REINHHARD, RICHARD A., D.V.M.
500 Nashoba Ave., Columbus 4, Ohio.

RODABAUGH, EDWIN R., D.V.M.
Williamstown, Ohio.

RUDY, RICHARD L., D.V.M.
Pleasant Hill, Ohio.

SACHS, SHERMAN, D.V.M.
172 W. Lane Ave., Columbus, Ohio.

SAUNDERS, E. C., D.V.M.
c/o Dr. W. G. Saunders, 7742 Aberdeen St., Chicago, Ill.

SCHNURRENBERGER, LEROY W., D.V.M.
5481 Mahoning Ave., Youngstown, Ohio.

SHOTTON, JAMES B., D.V.M.
Box 703, Winter Haven, Fla.

SKIDMORE, MERRITT, D.V.M.
West Mansfield, Ohio.

STARR, HUGH S., D.V.M.
2602 Neil Ave., Columbus 2, Ohio.

STOCKTON, JACK J., D.V.M.
St. Paris, Ohio.

TAYLOR, WARREN J., D.V.M.
R.R. No. 1, Xenia, Ohio.

WALKER, JAMES M., D.V.M.
Warsaw, Ohio.

WALLMAN, HAROLD, D.V.M.
5220 Kimbark Ave., Chicago 15, Ill.

WENNER, HAROLD R., D.V.M.
Carey, Ohio.

WORLEY, RAYMOND W., D.V.M.
2034 N. High St., Columbus, Ohio.

Washington State College

AASEN, STEPHEN W., D.V.M.
Marshfield, Ore.
Vouchers: E. E. Wegner and J. E. McCoy.

AMENT, ROLAND W., D.V.M.
104 Columbis St., Pullman, Wash.
Vouchers: G. J. Freiermuth and E. E. Wegner.

ANDRIST, CHARLES G., D.V.M.
2711 E. Rowan Ave., Spokane, Wash.
Vouchers: E. E. Wegner and J. E. McCoy.

BOE, SILAS L., D.V.M.
505 Jorden Rd., Pullman, Wash.
Vouchers: E. E. Wegner and J. E. McCoy.

CLARKE, WILLIAM J. JR., D.V.M.
601 Campus Apt. No. 3, Pullman, Wash.
Vouchers: N. G. Covington and E. E. Wegner.

COOPER, HARVEY R., D.V.M.
611 Linden, Winthrop, Wash.
Vouchers: W. M. Thorning and E. E. Wegner.

DODGE, JOHN R., D.V.M.
209 E. 12 St., Olympia, Wash.
Vouchers: J. E. McCoy and E. E. Wegner.

DUBOIS, HOWARD S., D.V.M.
Rt. No. 2, Box 1882, Kent, Wash.
Vouchers: E. E. Wegner and J. E. McCoy.

EWING, WILLIAM J., D.V.M.
Midway Apts. No. 8, Pullman, Wash.
Vouchers: E. E. Wegner and W. M. Thorning.

FERRUCCI, VITT P., D.V.M.
9145 7th Ave., S., Seattle 8, Wash.
Vouchers: E. E. Wegner and W. M. Thorning.

FORTMANN, EBERHARD A., D.V.M.
R.R. No. 3, Pullman, Wash.
Vouchers: G. J. Freiermuth and J. E. McCoy.

GARLICK, GORDON K., D.V.M.
509 Jordan Rd., Pullman, Wash.
Vouchers: E. E. Wegner and J. E. McCoy.

GAW, LAMAR H., D.V.M.
7756 19 N.E., Seattle, Wash.
Vouchers: E. E. Wegner and J. E. McCoy.

GEIERMAN, JOSEPH L., D.V.M.
Patton State Hosp., Patton, Calif.
Vouchers: W. C. Bateman and E. E. Wegner.

HANSELL, WILLIAM H., D.V.M.
Athens, Ore.
Vouchers: E. E. Wegner and J. E. McCoy.

HARDESTY, JACK E., D.V.M.
Spangle, Wash.
Vouchers: E. E. Wegner and J. E. McCoy.

HARE, CARROLL L. JR., D.V.M.
1211 Warren St., San Fernando, Calif.
Vouchers: W. M. Thorning and E. E. Wegner.

HATFIELD, DOREEN, D.V.M.
Rt. 3, Box 2760, Renton, Wash.
Vouchers: E. E. Wegner and W. M. Thorning.

HAYWARD, CHARLES W., D.V.M.
607 W. Sinto, Spokane, Wash.
Vouchers: E. E. Wegner and G. J. Freiermuth.

HERBERT, EARL W., D.V.M.
R.F.D. No. 6, Spokane, Wash.
Vouchers: E. E. Wegner and J. E. McCoy.

KOVACH, FLORIAN M., D.V.M.
828 E. 60 St., Tacoma, Wash.
Vouchers: G. J. Friermuth and E. E. Wegner.

KREBS, WALTER J., D.V.M.
102 W. Crockett St., Seattle, Wash.
Vouchers: G. J. Friermuth and E. E. Wegner.

OSEBOLD, JOHN W., D.V.M.
90 Cumberland St., San Francisco, Calif.
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PINCKNEY, BERNARD R., D.V.M.
Sunnyside Acres, Hoquiam, Wash.
Vouchers: E. E. Wegner and J. E. McCoy.

RHOADES, MERVIN G., D.V.M.
801 S. Granercy Dr., Los Angeles, Calif.
Vouchers: E. E. Wegner and G. J. Freiermuth.

SHUMAKER, CHAS. W., D.V.M.
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VERNON, RAYMUND G., D.V.M.
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WALDEN, RICHARD T., D.V.M.
Box 581, Avenal, Calif.
Vouchers: E. E. Wegner and J. E. McCoy.

WALLACE, LEIGHTON E., D.V.M.
Rt. No. 1, Snohomish, Wash.
Vouchers: G. J. Freiermuth and E. E. Wegner.

ZIMMERMAN, JAMES A. JR., D.V.M.
1720 "A" St., Pullman, Wash.
Vouchers: E. E. Wegner and J. E. McCoy.

Second Listing

Alabama Polytechnic Institute*

Adams, Carroll P., D.V.M., 303 N. Scott St., Camilla, Ga.

Bass, E. Hugh, D.V.M., Rt. 2, Wilson, N. Car.

Boyd, Marcellus, Jr., D.V.M., 68 S. W. 21st Rd., Miami, Fla.

Brinkman, Ben A., D.V.M., 113 Helvenston Ave., Live Oak, Fla.

Iowa State College

Albrecht, Joseph W., D.V.M., Tiskilwa, Ill.

Anderson, Stilaf, D.V.M., Holt, Minn.

Barrington, James A., D.V.M., Alexis, Ill.

Dunnwald, John H., D.V.M., 703 E. Fourth St., St. Paul, Minn.
Eninger, Robert A., D.V.M., Rt. 1B, Spencer, Iowa.
Enoe, Stanley R., D.V.M., 7 N. Keeler Ave., Chicago, Ill.
Espensen, Lawrence L., D.V.M., McAllen, Texas.
Finch, Robert W., D.V.M., Kelley, Iowa.
Flanary, James B., D.V.M., St. Charles, Minn.
Fruit, David J., D.V.M., Rt. 3, New Brunswick, N. J.
Gray, Burton, J., D.V.M., 1755 Dixon St., Manhattan Beach, Calif.
Harry, Max W., D.V.M., 825 Milan Ave., So. Pasadena, Calif.
Henning, Elvero R., D.V.M., Scranton, Iowa.
Humke, Laurence W., D.V.M., Ackley, Iowa.
Idsvoog, Oris P., D.V.M., Cooperstown, N. Dak.
Isakson, Eric W., D.V.M., 116 Adams Ave., Ogden, Utah.
Janson, Eldon J., D.V.M., Clarion, Iowa.
Jones, Jack M., D.V.M., Mountain Grove, Mo.
Kanegis, Leon A., D.V.M., 25 Sea-Foam Ave., Winthrop, Mass.
Kjar, Harold A., D.V.M., R.R. No. 2, Lexington, Neb.
Kopp, Wendell J., D.V.M., 1010 W. Iowa Ave., Indianola, Iowa.
Ladwig, Vaylord D., D.V.M., 212 N. Hazel Ave., Ames, Iowa.
Lane, James D., D.V.M., 4320 Butler Pl., Oklahoma City, Okla.
Miller, Jeffrey J., D.V.M., c/o Dr. E. J. Dahlquist, Fayette, Iowa.
Olson, Arnold T., D.V.M., Sioux Rapids, Iowa.
Olson, Gustaf J., D.V.M., 24 First St., Cloquet, Minn.
Peterson, Philip C., D.V.M., Aurelia, Iowa.
Pierson, Robert E., D.V.M., 3481 Washington St., San Francisco, Calif.
Reinertson, K. L., D.V.M., Kelley, Iowa.
Rohwer, Harold H., D.V.M., 1811—8th Ave., N., Ft. Dodge, Iowa.
Ruebke, H. J., D.V.M., Ada, Minn.
Schneider, Robert, D.V.M., Elgin, Iowa.
Schuknecht, Robert, D.V.M., 821 N. Wisconsin St., Port Washington, Wis.
Scott, A. M., D.V.M., 742—40th St., Des Moines, Iowa.
Stanton, Harlan M., D.V.M., 1338 Birchwood Ave., Chicago, Ill.
Thompson, Judson, D.V.M., 437—13th St., Windom, Minn.
Thompson, Wayne H., D.V.M., Earlville, Iowa.
Thornton, James W., D.V.M., R.R. No. 1, Ankeny, Iowa.
Ungs, David H., D.V.M., 302 W. Main, Dyersville, Iowa.
Wagner, Robert E., D.V.M., Glidden, Iowa.
Brown, James E., D.V.M., Rich Square, N. Car.
Burriss, William M., D.V.M., Rt. 1, Anderson, S. Car.
Caplinger, William O., D.V.M., 219 E. Campbell St., Frankfort, Ky.
Clower, Thomas A., D.V.M., 312 Franklin St., Douglas, Ga.
Cole, Norman, D.V.M., 11 Rugby Rd., Buffalo, N. Y.
Conner, Robert F., D.V.M., Jasper, Ala.
Cowart, Ray R., D.V.M., Arlington, Ga.
Cunningham, W. W., D.V.M., 935—15th Ave., S., St. Petersburg, Fla.
Davis, C. S., D.V.M., 109—7th St., N.E., Atlanta, Ga.
Davis, T. C., D.V.M., 337 W. Magnolia, Auburn, Ala.
Dimmerling, Lucille S., D.V.M., Box 29, Notasulza, Ala.
Dixon, James T., D.V.M., South Main, Winston-Salem, N. Car.
George, David, D.V.M., 5908 6th Ave., S., Birmingham, Ala.
Harman, C. C., D.V.M., Floyd, Va.
Harris, J. R., D.V.M., P. O. Box 42, Tifton, Ga.
Hart, J. T., D.V.M., Box Springs, Ga.
Hayles, Marion L., D.V.M., Frisco City, Ala.
Head, Thos. E. Jr., D.V.M., P. O. Box 246, Andalusia, Ala.
Henderson, Forrest E., D.V.M., Mountain Creek, Ala.
Hicks, Robert G., D.V.M., 1019 Western Ave., Rocky Mount, N. Car.
Hill, Charles P., D.V.M., R.F.D., Williamson, Ga.
Hillhouse, Harry L., D.V.M., 2716 35th Ave., N., Birmingham, Ala.
Jolly, Boyce M., D.V.M., Ayden, N. Car.
Justo, Joseph C., D.V.M., Rt. 6, Box 144-F, Birmingham, Ala.
Kronfeld, Turner, D.V.M., Box 2003, Herndon, Va.
Levy, Morris, D.V.M., c/o Mrs. J. E. Stern, 1118 E. 9th St., Brooklyn, N. Y.
McCrory, John A., D.V.M., Rt. 3, Greenville, Ala.
McGee, Harold L., D.V.M., 190 E. Fourth St., Hialeah, Fla.
McWilliams, Frank A. Jr., D.V.M., 711 Norten Ave., Sylacauga, Ala.
Martin, James A., D.V.M., 100 W. Broadway, Gettysburg, Pa.
Matthews, Olyn K., D.V.M., Louisville, Ala.
Nall, John D., D.V.M., Rt. 2, Georgiana, Ala.
Nettles, W. Douglass, D.V.M., 226 E. Magnolia Ave., Auburn, Ala.
Pass, William E., D.V.M., Bloutsville, Ala.
Reed, E. L. Jr., D.V.M., 1760 E. Blount St., Pensacola, Fla.
Ross, Alan, D.V.M., 50-1 Poinciana Pl., Key West, Fla.
Scoville, Sheldon H., D.V.M., 39 Rhoda Ave., Nutley, N. J.
Sledge, Joe L., D.V.M., Greensboro, Ala.
Smith, Joseph S., D.V.M., Whiteville, N. Car.
Stratmeyer, Ernest H., D.V.M., McNoel, Ill.

Weir, Howard T., D.V.M., Media, Pa.

Westerfeldt, Marvin H., D.V.M., Rt. No. 2, Box 42, Reedsburg, Wis.

Whitford, Russell L., D.V.M., R.F.D. No. 3, Darlington, Wis.

Yoder, Wayne D., D.V.M., 437 Hayward Ave., Ames, Iowa.

Young, Robert M., D.V.M., Quartermaster Remount Depot, Front Royal, Va.

University of Pennsylvania

Alberts, Joseph O., V.M.D., 105 E. High, Urbana, Ill.

Arnold, Maurice W., V.M.D., 161 E. Main St., Stafford Springs, Conn.

Bender, John W., V.M.D., 511 E. Main St., Lititz, Pa.

Biswanger, Leonard R., V.M.D., 6521 N. 13th St., Philadelphia, Pa.

Blum, Clayton I., V.M.D., 331 South St., Philadelphia, Pa.

Bollens, Kenneth L., V.M.D., 2329 Perrysville Ave., N.S., Pittsburgh, Pa.

Brachman, Bernard, V.M.D., R.D. No. 1, Millville, N. J.

Brown, J. Wm., V.M.D., 460 Grove St., Irvington, N. J.

Burton, Harold F., V.M.D., Monkton, Md.

Carlson, Vance A., V.M.D., R.F.D., No. 2, Port Allegany, Pa.

Daugherty, E. Bloxom Jr., V.M.D., Delmar, Md.

Derrer, Lee W., V.M.D., 405 N. Main St., Mt. Carroll, Ill.

Deubler, J. A., V.M.D., Newtown, Bucks Co., Pa.

Dougherty, Ellsworth 3rd, V.M.D., Willoway Farm, Rutledge, Pa.

Downing, Theodore O., V.M.D., Rt. No. 1, Ettrick, Va.

Finkelstein, Jacob, V.M.D., 836 Eaton Rd., Drexel Hill, Pa.

Frater, Robert B., V.M.D., 676 Santa Rosa Ave., Berkeley, Calif.

Gemberling, Arthur R. Jr., V.M.D., 65 N. Main St., Woodstown, N. J.

Grim, Courtney, V.M.D., 375 National Ave., Winchester, Va.

Gulick, William C., V.M.D., Blooming Glen, Pa.

Haverstick, Donald, V.M.D., 19 N. Lafayette Ave., Ventnor City, N. J.

Hettig, Edwin S., V.M.D., 601 Mahoning St., Lehighton, Pa.

Isben, David, V.M.D., 23 N. Dawes Ave., Kingston, Pa.

LeBovit, George B., V.M.D., 608 S. 18th St., Newark, N. J.

Lewis, Jonathan S. Jr., V.M.D., 3 Elm St., Concord, N. H.

McCullough, John D., V.M.D., Corsica, Pa.

McGrath, John T., V.M.D., 3220 Brunswick Ave., Drexel Hill, Pa.

Mathey, William J. Jr., V.M.D., 77 Washington Ave., Clifton, N. J.

Moor, John W., V.M.D., 41 Kent St., Trenton, N. J.

Moorehead, C. Arnold, V.M.D., Public Square, Bedford, Pa.

Moulton, William M., V.M.D., 22 Ferris St., St. Albans, Vt.

Patterson, Arthur W. Jr., V.M.D., 835 S. Newberry St., York, Pa.

Ramey, Donald B., V.M.D., 22 S. Grant St., Waynesboro, Pa.

Ricker, H. Glenn Jr., V.M.D., State Rd. Hill, Waynesboro, Pa.

Shinn, B. J. Jr., V.M.D., 7432 Gleneagles Rd., Norfolk, Va.

Smith, Harold M. S., V.M.D., 132 Evergreen Pl., East Orange, N. J.

Tyler, George W., V.M.D., 4217 Fern Blvd., Drexel Hill, Pa.

Texas A. & M. College

Black, W. L. Jr., D.V.M., Box 29, Portales, N. M.

Washington State College

Beasley, Robert P., D.V.M., 2900 Francis, Los Angeles, Calif.

COMMENCEMENTS

Alabama Polytechnic Institute

At the commencement exercises of the Alabama Polytechnic Institute, held Nov. 26, 1943, the following candidates were presented for the degree of Doctor of Veterinary Medicine by R. S. Sugg, dean of the School of Veterinary Medicine:

Adams, Carroll P.
Bass, Ernest H.
Boyd, Perry M. Jr.
Brinkman, Ben A.
Brown, James E.
Burriss, W. M.
Caplinger, W. O.
Clower, Thomas A.
Cole, Norman
Conner, Robert F.
Cowart, Ray R.
Cunningham, W. W.
Davis, Charles S.
Davis, Thomas C.
Dimmerling, L. S.
Dixon, James T.
George, Charles D.
Harman, C. C.
Hart, Joel T.
Hayles, Marion L.
Head, Thomas E. Jr.
Henderson, F. E.
Hicks, Robert G.
Hill, Charles P.
Hillhouse, H. L.
Jolly, Boyce M.
Justo, Joseph C.
Kronfeld, B. T.
Levy, Morris
McCrory, John A.
McGee, Harold L.
McWilliams, F. A. Jr.
Martin, James A.
Matthews, O. K.
Nall, John Delma
Nettles, W. D.
Pass, William E.
Reed, Ernest L. Jr.
Ross, Alan
Scoville, S. H.
Sledge, Joe L.
Smith, Joseph S.
Stratmeyer, E. H.
Weir, Howard T.

Iowa State College

At the commencement exercises of Iowa State College on Dec. 18, 1943, Dean Charles Murray presented the following candidates for the degree of Doctor of Veterinary Medicine:

Albrecht, Joseph W.
Allison, Archibald F.
Anderson, Stilaf
*Baker, Durwood L.
†Barrington, Jas. A.
Bicek, Ernest K.
*Blair, Alvin E.
Dunnwald, John H.
Eninger, Robert A.
*Enoe, Stanley R.
*Espensen, L. L.
†Finch, Robert W.
Flanary, James B.
*Foley, Edward J.
†Fruit, David J.
Gray, Burton J.
Harry, Max W.
Henning, E. R.
†Hoyt, Robert H.
Humke, L. W.
Idsvoog, O. P.
†Isakson, Eric W.
Jackson, Gilbert S.
Janson, Eldon J.
Jones, Jack M.
Kanegis, Leon A.
Kjar, Harold A.
†Kopp, Wendell J.
Ladwig, Vaylord D.
Lane, James D.
Lynch, William M.
Miller, Jeffrey J.
Moore, Maurice W., Jr.
Nelson, Melvin R.
Olson, Arnold T.
Olson, Gustaf J.
Peterson, Philip C.
*Pierson, Robert E.
Pratt, Donald W.
†Preusser, Karl R.
Reinertson, K. L.
Rieke, Ralph W.
*Rohwer, H. H.
Ruebke, H. J.
Schneider, Robert F.
Schuknecht, R. C.
*Scott, A. M.
Stanton, Harlan M., Jr.
Stillinger, Clark J.
†Stoenner, Herbert G.
†Thompson, J. A.
Thompson, Wayne H.
*Thornton, James W.
*Underbjerg, G. K.
Ungs, David H.
Vegors, Mason M.
Vollmar, Warren, W.
Wagner, Robert E.
†Westerfeldt, M. H.
Whitford, Russell L.
Yoder, Wayne D.

The honor student in veterinary medicine was Herbert George Stoenner. The winners of the G. G. Graham awards—based on the records of the students' work in clinical practice were: First prize, Robert W. Finch; second prize, Leon A. Kanegis.

*Civilian students. Remaining fifty-one students in A.S.T.P. with Pfc. rating.

†Students commissioned first lieutenants in Veterinary Corps on graduation date.

Ohio State University

At the commencement exercises of The Ohio State University, Dec. 17, 1943, Dean O. V. Brumley presented the following candidates for the degree of Doctor of Veterinary Medicine:

Beardsley, David S.
Becker, Paul Jr.
Booher, Howard E.
Boyd, Waive O.
Brewer, James A.
Bunker, Von C.
Caldwell, Nancy L.
Catcott, Earl J.
Cates, John P.
Chadwick, Ralph D.
Cornett, Harry D.
Danis, John E.
Diesem, Charles D.
Dixon, George F.
Elliott, Herbert B.
Enderle, Wayne W.
Erdmann, Arden A.
Evans, Ralph W.
Farmer, John H.
Fireoved, Ralph T.
Fisher, Robert I.
Folsom, Robert H.
Glass, Howard R.
Green, Lawrence E.
Greenlee, Allan M.
Grossman, R. W.
Hansberger, C. H.
Hopping, Jerry L. Jr.
Jacobs, Harold D. Jr.
Jones, David O.
Kocher, Ralph Jr.
Lantis, Geo. W., Jr.
Little, Paul
Lloyd, Kenneth E.
MacDonald, Daniel G.
McBride, Dwight M.
McKee, James O.
Miller, Charles W.
Moore, John F.
Moore, John W.
Nickell, Vernie L.
Olds, Durward
Pleasant George E.
Ranck, Wesley A.
Reinhard, Richard A.
Rodabaugh Edwin R.
Rudy, Richard L.
Sachs, Sherman D.
Saunders, Edward C.
Schnurrenberger, L. W.
Shotton, James B.
Skidmore, Merritt E.
Starr, Hugh S.
Stockton, Jack J.
Taylor, Warren J.
Walker, James M.
Wallman, Harold
Wenner, Harold R.
Worley, Raymond W.

University of Pennsylvania

At the annual commencement exercises of the University of Pennsylvania, held on Dec. 22, 1943, George A. Dick, dean of the School of Veterinary Medicine, presented the following candidates for the degree of Doctor of Veterinary Medicine:

Alberts, J. O.
Arnold, M. W.
Bender, John W.
Biswanger, L. R.
Blum, Clayton I.
Bollens, K. L.
Brachman, Bernard
Brown, J. Wm.
Burton, Harold F.
Carlson, Vance A.
Daugherty, E. B. Jr.
Derrer, Lee W.
Deubler, J. A.
Dougherty, E., 3rd
Downing, T. O.
Finkelstein, Jacob
Frater, Robert B.
Gemberling, A. R. Jr.
Grim, Courtney
Gulick, William C.
Haverstick, D.
Hettig, Edwin S.
Ibsen, David
LeBovit, George B.
Lewis, J. S. Jr.
McCullough, J. D.
McGrath, John T.
Mathey, W. J. Jr.
Moor, John W.
Moorehead, C. A.
Moulton, W. M.
Patterson, A. W. Jr.
Ramey, Donald B.
Ricker, H. Glenn
Shinn, B. J. Jr.
Smith, Harold M. S.
Tyler, George W.

U. S. GOVERNMENT

Cliff Carpenter Takes on Added Duties with War Food Administration

Effective Jan. 7, 1944, Dr. Cliff D. Carpenter, who for nearly a year has served as Poultry Collaborator in Poultry Viability to the U. S. Bureau of Animal Industry and also as executive secretary of the National Poultry Advisory Council in the joint conservation program of the poultry industry and the BAI, was named Special Assistant to the Chief of the Feed and Livestock Branch of the War Food Production Administration. The purpose of the move is to allow Dr. Carpenter to assist in organizing programs for livestock production and conservation along lines similar to those which have been developed and so effectively carried on in the poultry field since March, 1943.

Dr. Carpenter will remain a "dollar a year" man through loan from Allied Mills, Inc., with whom he has been associated for a number of years as poultry pathologist and in charge of educational work on nutrition and disease control in poultry and livestock. He will spend the major portion of his time, under the new arrangement, in continuing the work of the National Poultry Advisory Council but will devote the balance of his time to other livestock programs.

The transfer of the government's participation in the "Poultry Conservation for Victory" program from the Bureau of Animal Industry to the War Food Administration is a logical one, since the former agency is primarily concerned with research and disease control, while the latter has educational and promotional functions in food production in addition to other duties. In analyzing the problems which confront the country in meeting the needs of 1944, the War Food Production Administration recognized that a major factor would involve double-barreled conservation; conservation of feeds and conservation of the animals and poultry to which it is fed. The outstanding success of the poultry conservation program under Dr. Carpenter's guidance impressed officials so much that a way was sought in which the same principles and procedures might be applied to livestock.

The National Poultry Advisory Council and its component committees met in Chicago on Jan. 9-10, 1944. At this session, the transfer described was approved and the industry representatives voted to continue its support of the Council and its work through 1944. Thus the program will continue to function as a unique all-poultry industry activity with support from both industry and government, and with its personnel now to be utilized, part time, on a much broader basis.

Research Laboratory Dedicated—The aggrandized Sustenance Research and Development Laboratory was dedicated at 1840 West Pershing Road, Chicago, January 8, 1944. High-ranking Army officers, among whom were the Quartermaster General E. B. Gregory and prominent leaders of the nation's food industry, participated. The laboratory is said to be the largest and most complete institution of its kind—a marvel in size, equipment, and efficient operation, designed to serve "the best fed Army in the world," the report declares.

The Paper Shortage.—Under date of Nov. 22, 1943, Donald M. Nelson, chairman of the WPB, thanks the magazine publishers for their coöperation in the equitable allocation of newsprint, and announces that to the 11 per cent reduction for 1943 an additional 15 per cent lies ahead for 1944. In order to comply with the order, the following ways of economizing are proposed: (1) Reduce basic paper weights, (2) reduce overall trim, (3) smaller margins, (4) reduce type size, (5) reduce width of chase bars, (6) reduce white areas, (7) avoid press and bindery waste, and (8) reduce spread between print order and net distribution. In short, the order means a general tightening up in the magazine publishing business.

The Poultry Situation.—Senior Poultry Husbandman T. C. Byerly, USDA, announces that poultry producers started 1943 with 480,000,000 layers and that more than 900,000,000 were raised during that year but that, owing to the labor, feed, and material situation, this figure is not likely to be increased during 1944. The eradication of avian tuberculosis in the north-central area is advocated and directions on the culling of pullets are given.

Registrations of Three Minnesota Veterinarians Suspended by WFA.—The War Food Administration announced on Jan. 11, 1944, that it had suspended for three years the registrations of three Minnesota veterinarians who were registered under the Packers and Stockyards Act to test cattle at the South St. Paul Stockyards for Bang's disease and tuberculosis. The action was taken against E. L. Orput, P. E. Bailey and R. H. Forsythe after a formal hearing on charges of violating regulations and neglecting duty under the federal act in question.

In July, 1942, the Minnesota State Livestock Sanitary Board disqualified Drs. Orput, Bailey and Forsythe for six months and WFA officials said they had not tested any livestock at the South St. Paul Yards since then.

Investigation revealed that official certificates were being issued by the men involved showing that animals had been tested and found free of Bang's disease and tuberculosis when in fact the tests had not been made.

AMONG THE STATES

Australia

Retirement Message to Dr. Mohler.—On Jan. 2, 1944, Dr. John R. Mohler, recently retired as chief of the Bureau of Animal Industry, received the following letter, dated Nov. 26, 1943, from the honorary secretary of the Australian Veterinary Association:

Dear Dr. Mohler:

At the twentieth annual general meeting of this Association which was held in Sydney last month attention was directed to your forthcoming retirement as Chief, Bureau of Animal Industry, United States of America.

On behalf of the meeting, I have very much pleasure in conveying to you the very best wishes from the members of the profession in this country and many happy days in your retirement.

Yours faithfully,

s/GRAHAME EDGAR, *Honorary Secretary.*

California

Pet Paket.—The *National Humane Society Review* of San Francisco has proposed a means of saving hotel and restaurant table scraps for feeding pet animals. The patron who wants such scraps is furnished a container called a "pet paket" for carrying home his pet's meal. The suggestion is said to have been enthusiastically received. Results remain to be seen.

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Canada

William Nicholls (O.V.C. '87), Kingston, Ont., the oldest veterinary practitioner in the Dominion, died in December at the age of 88. He was active until but a few months prior to his death. Dr. Nicholls is remembered as the teacher of anatomy in the shortlived Veterinary Department of Queen's University at Kingston (1890's). He was a charter and life member of the Central Canada Veterinary Association.

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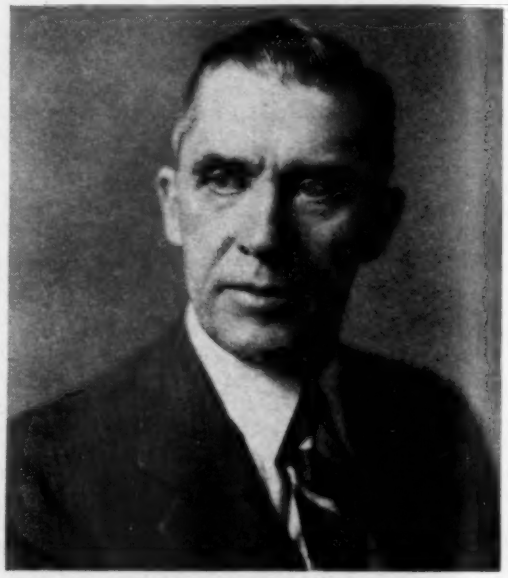
British Columbia Veterinary Medical Association.—A meeting of the Association was held in Vancouver Dec. 11, 1943. Dr. R. G. Cuthbert, acting chairman, opened the meeting with a quizz on veterinary history and unusual terms. The following papers were given, followed by active discussion.

E. L. Nundal: "Mastitis."
F. A. Folinsbee: "Demodectic Scabies."
G. G. McDonald: "Acetonemia."
J. H. Martyn: "Ringworm."

s/J. G. JERVIS, *Resident Secretary.*

Canada's New Veterinary Director General

Dr. Mark Barker (OVC '07) is the new veterinary director general of the Dominion of Canada. He was appointed to that office by the Dominion Department of Agriculture in December, 1943, succeeding himself as acting veterinary director general, the status he had held since the retirement of Dr. A. E. Cameron in March, 1943.



Dr. Mark Barker

Dr. Barker spent his boyhood on his father's farm in Ontario and went to western Canada in 1900 to join the famous Royal North West Mounted Police. Later, after engaging for a time in ranching, he entered the Ontario Veterinary College. Upon graduating, he practiced at Calgary, Alta. In 1906, he entered the Dominion meat-inspection service at Edmonton and subsequently the field service in Saskatchewan. In 1920, he was appointed district veterinary inspector for the Department of Saskatchewan, and held that position until 1939 when he was named chief veterinary inspector with headquarters at Ottawa.

Canada's new veterinary director general is highly respected in public, professional, and private life and everywhere regarded as a worthy successor to the prominent figures who have occupied that high office. He is a member of the American, Ontario, Central Canada, Saskatchewan Veterinary Medical Associations and the United States Live Stock Sanitary association, and a past president of the Saskatchewan branch of the Canadian Society of Technical Agriculturists.

Delaware

State Association—*Occasion:* Annual meeting. *Place* and *date:* Wilmington, Dec. 17, 1943. *Attendance:* 32. *Officers elected:* H. P. Eves, Wilmington, *president;* C. C. Palmer, Newark, *secretary;* M. L. Zurkow, Dover, Wm. C. Prouse, Lewes, and Harvey L. Fell, Wilmington, *Board of Directors. Program:*

S. F. Scheidy, member of the Executive Board of the AVMA, Philadelphia: "Sulfonamides in Veterinary Medicine."

V. C. Lancaster, New Castle: "The New State Plan for the Control of Bovine Mastitis."

A resolution was passed approving the state's plan of handling the mastitis problem and the secretary was directed to express the Association's appreciation to the State Board of Agriculture, the University of Delaware, Haskell Research Associates, Inc., and Governor Walter W. Bacon for their support of the project.

Major D. E. Kelly and lieutenants O. F. Davis, L. L. Loy, and R. L. Pyle of the Veterinary Corps were among the guests.

s/C. C. PALMER, *Secretary.*

Hawaii

Forty cases of dengue fever occurred in widely separated parts of Honolulu in July, 1943. Previous outbreaks occurred in the early 1890's, 1903, and 1912. The epidemic of 1903 was severe and widespread. Up to Dec. 4, 1943, there had been 1,250 cases reported. They varied from mild ambulatory to severe bedridden cases with delirium and mental disorders. There was but one fatal case. Dengue, also called breakbone fever, is a protozoan infection transmitted by a mosquito of the genus Aedea. It is manifested by intense aching of the head, muscles and articulations, and an erythematous rash. Animals are immune.

Illinois

Central Illinois Association. — The regular meeting of the Central Illinois Veterinary Medical Association was held in the form of a dinner session at the Leland Hotel, Dec. 15, 1943. **J. P. Torrey,** Corn Belt Serum Company, presented a film on the subject of the dog tick and a question box brought various other subjects into the program.

s/C. C. HASTINGS, *Secretary.*

Iowa

R. M. Hofferd (CVC '17), Cedar Rapids, prominent figure in clinical swine medicine, was one of the guest speakers at the New York Conference for Veterinarians held at Ithaca, N. Y., in January. He spoke of the diagnosis and treatment of infectious diseases of swine.

Walter C. Stewart (ISC '07), Maquoketa, died of tuberculosis in December, 1943. Having aided in stamping out bovine tuberculosis in Iowa, the *Cedar Rapids Gazette* (Dec. 20) says: "there is irony in the fact that he died of that disease—a martyr to a noble cause."

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Midwest Small Animal Association.—At the November (1943) meeting of the Midwest Small Animal Association held at Burlington in November, Earle R. Kennedy, Moline, Ill., was elected *president;* R. V. Beard, Burlington, *vice president,* and W. H. Riser, Des Moines, was re-elected *secretary-treasurer.* Prominent among the speakers were President Charles W. Bower of the AVMA; J. B. Bryant, Mount Vernon; I. P. Irwin, Iowa City; and R. M. Carter, Alexis, Ill.

Michigan

Chas. Haasjes, Shelby, writes: "The first issue of the Dutch East Indies Veterinary Journal was published in 1885. It received a subsidy of $400 a year from the Queen of Holland."

Minnesota

W. E. Welsh of Hibbing has taken over the large animal practice of W. S. Wilson at Buffalo, retired on account of ill health, and T. P. Nankervis of Eveleth has been chosen to do the meat-inspection work of the Hibbing health department formerly done by Dr. Welsh.

New York

C. E. Harbison, well-known figure of dog-show and field-trial circles has joined the Quaker Oats Company as a special representative and technician in the canine field. He was formerly manager of the kennel department of *Vogue* and *House and Garden.*

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New York City Association.—*Occasion:* Regular monthly session. *Place* and *date:* Hotel New Yorker, Dec. 1, 1943. *Officers elected:* R. J. Finklestein, *president;* E. R. Cushing, *vice-president;* C. R. Schroeder, *secretary-treasurer;* Charles Fletcher (Chr.), S. M. Appleby, Stuart Crawford, Joseph Millar, and W. E. Ulmer, *Board of Censors. Program:*

C. Lawrence Blakely, Angell Memorial Animal Hospital, Boston: "Surgical Treatment of Perineal Hernia in Dogs."

Sidney M. Kessler, George Levy of New York City, and Mark Welsh of Ridgewood, N. J., were elected members. The January (1944) meeting was postponed to the 12th on account

of the Conference for Veterinarians at Ithaca, Jan. 5-7, 1944. The question of telephone directory advertising was discussed.

s/C. R. SCHROEDER, *Secretary-Treasurer.*

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Dr. Fincher Appointed Acting Dean at Cornell

Dr. M. G. Fincher (Corn. '20), Professor of Medicine, New York State Veterinary College, was appointed Acting Dean, effective Dec. 15, 1943, by President Day of Cornell University. Dr. Fincher will serve during the absence of Dean Hagan, who is on a year's leave (*see* January, 1944, JOURNAL, p. 54), as special assistant to Chief A. W. Miller of the Bureau of Animal Industry.

Dr. Fincher will serve as acting dean until Dr. Hagan's return to the university which is expected about Nov. 1, 1944.

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The Chemical Publishing Co., Inc., 26 Court street, Brooklyn, has just issued a new catalogue listing their latest books on chemistry, technology, physics, general science, mathematics, engineering, radio, aviation, foods, formularies, cosmetics, gardening, medicine, metals, technical dictionaries, etc., which may be obtained on request.

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The Ithaca Conference.—*Occasion:* 36th annual conference for veterinarians of the N. Y. State Veterinary College. *Place* and *date:* Ithaca, Jan. 6-7, 1944. Three-day, six-session meeting presided over, respectively, by P. P. Levine, J. N. Frost, J. A. Dye, M. G. Fincher, H. L. Gilman, and A. Zeissing. Stated program:

A. G. Danks, Associate Professor of Parasitology, N. Y. State Veterinary College: "Address and Announcements."

W. J. Gibbons, Assistant Professor of Veterinary Medicine, *ibid.:* "Ambulatory Clinic Cases," Illustrated.

Cliff D. Carpenter, Chicago, Ill., Executive Secretary, National Poultry Conservation Program, USDA: "The Veterinarian's Responsibility in the Poultry War Effort."

C. E. Hayden, Professor of Veterinary Physiology, *ibid.:* "New Knowledge Regarding Metabolic Disorders in Animals, Baby Pig Disease, Milk Fever, Ketosis."

H. C. Stephenson, Professor of Materia Medica, Small Animal Clinic, *ibid.:* "Vaccination Against Dog Distemper."

E. V. Moore, Assistant Commissioner of Agriculture, Albany, N. Y.: "The Department of Agriculture and Markets and the Veterinarian."

D. W. Baker, Assistant Professor of Parasitology, N. Y. S. V. C.: "Rational Viewpoint of the Results of Fecal Examinations for Parasites."

Brig. Gen. R. A. Kelser, Director of the Veterinary Corps, U. S. A., Washington, D. C.: "The Army Veterinary Corps."

J. B. Engle, Small Animal Praetitioners, Summit, N. J.: "Canine Practice During Wartime."

W. E. Peterson, Professor of Dairy Husbandry, University of Minnesota: "Physiological Factors in Lactation Relating to Milking and Mastitis." Discussion by G. H. Hopson, DeLaval Separator Co., New York City.

S. D. Johnson, Instructor, and S. J. Roberts, Assistant Professor, Chair of Veterinary Medicine, N.S.V.C.: "The Prognosis and Treatment of Mastitis." Discussion by H. R. Greene and John McAuliff.

Charles W. Bower, President of the American Veterinary Medical Association, Topeka, Kans.: "Some Small Animal Therapeutics."

F. B. Morrison, Professor of Animal Husbandry and Animal Nutrition, Cornell University: "Wartime Substitution in Livestock Rations."

H. W. Thompson, Professor of English, Cornell University and **E. R. Eastman,** Editor American Agriculturalists: Speakers at the Conference Dinner.

H. J. Milks, Professor and Head of the Department of Materia Medica, N.Y.S.V.C.: "The Uremic Complex."

J. K. Loosli, Assistant Professor of Animal Nutrition, Cornell University: "The Rôle of Vitamins in Calf Health."

R. M. Hofferd, Corn States Serum Company, Cedar Rapids, Ia.: "Diagnosis and Treatment of Communicable Swine Diseases."

Peter Olafson, Professor of Pathology, N.Y. S.V.C.: "Impressions Gained in Recent Autopsies."

J. N. Frost, professor of Surgery and Director of the Consulting Clinic, *ibid.:* "Diseases of the Pharangeal Region of the Horses."

North Carolina

Conference for Veterinarians — *Occasion:* Sixth annual state College veterinary conference. *Place* and *date:* Polk Hall, State College, Jan. 25-28, 1944. *Speakers announced:* J. G. Hardenbergh, executive secretary, AVMA, Chicago; G. H. Hopson, DeLaval Separator Company, New York; L. E. Starr, Roanoke, Va.; D. A. Sanders, University of Florida; R. A. McIntosh, Ontario Veterinary College, Guelph, Ont.; D. S. Coltrane, assistant to the commissionar of agriculture, and Drs. Comstock, Bostian and Roberts, of the college staff.

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Radio Broadcasts. — Participating in the AVMA and state-association series of broadcasts planned for 1944, State Veterinarian Wm.

Moore arranged for 26 broadcasts of ten minutes each over WTPF beginning in January, 1944. Information on livestock health will be the theme of the scripts to be prepared and allocated to various veterinarians of the state who have volunteered their services.

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Roanoke-Tar Association.—This local society holds meetings the first Friday of each month at Rocky Mound with an average attendance of 25 and many of their wives. Veterinarians from far and wide attend these meetings. A representative of Ciba Pharmaceutical Products, Inc., Summit, N. J., was a guest speaker at the December (1943) session. The secretary is E. F. Boyette, of Smithfield.

North Dakota

Federal and state veterinarians working in the western part of the state held a conference and training school at Bismarck, Dec. 28, 1943. Fred. C. Driver, inspector-in-charge, outlined all phases of the work at hand, particularly in respect to branding and tattooing reacting cattle. The intradermal method of vaccinating cattle against brucellosis having been adopted, instruction on the proper technique was given. All present enthusiastically made suggestions that might aid in the prosecution of this important project. Among the directions was the use of an easily sterilized glass plunger syringe.

s/T. O. BRANDENBURG, *Resident Secretary.*

Pennsylvania

Conference for Veterinarians—*Occasion:* 45th annual conference. *Place:* School of Veterinary Medicine, University of Pennsylvania; *Date:* Jan. 4-5, 1944. *Program:*

G. A. Dick, Dean: "Address of Welcome."

B. M. Lyon, Lederle Laboratories: "Sulfaguanidine in Veterinary Medicine."

Melvin M. Rabstein, Livestock Sanitary Service Laboratory, College Park, Md.: "Brucella Immunity."

Charles W. Bower, President of the American Veterinary Medical Association: "An Address."

I. Live, School of Veterinary Medicine, University of Pennsylvania: "The use of Sulfapyridine and Sulfathiazole in Cows with Brucellosis."

Harry D. Less, University of Pennsylvania: "Student Health."

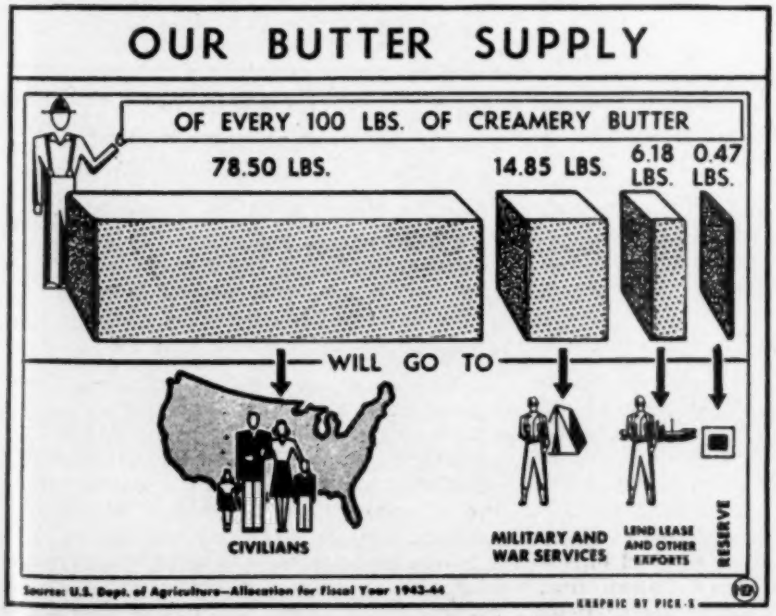
H. C. Campbell, G. Jaggard and **D. W. Crisman,** Dalare Associates: "Oral Treatment of Allergy."

Palace H. Seitz, Poultry Pathologist, State Bureau of Animal Industry: "Poultry Disease Control."

Major T. C. Jones, V. C., U. S. A.; Front Royal, Va.: "Equine Influenza."

Hon. Charles Horst, State Secretary of Agriculture: "An Address."

C. P. Bishop, Director, State Bureau of Ani-



The dairy cow population of the United States as of 1944 ranges around 27,000,000 head and the butterfat they produce is allocated as shown in this graphic illustration.

mal Industry "Bang's Disease Control—Plans for Calfhood Vaccination."

Robert O. Biltz, E. R. Squibb & Sons, New York City: "Sulfathiazole in the Treatment of Cattle Septicemias."

The four sessions were presided over respectively by G. A. Dick, M. A. Emmerson, E. L. Stubbs, and D. G. Lee.

Texas

After investigating the meat inspection service of Houston, State Representative Roger Q. Evans reported that "The city inspector is capable in his inspection work but needs additional help." In short, he can't be at the city's five abattoirs at the same time. The slaughter laws of the state are not adequate, Evans declared.

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Dr. E. W. Wupperman of Austin warns veterinarians about the danger of being mauled by bulls. He cites one case in which a Jersey bull, raised as a pet from calfhood, suddenly turned on his owner and mauled him to death, and of another bull that was killing his master when a faithful old dog came to his rescue. "This is something veterinarians must remember, for bulls of dairy herds are treacherous," *The Texas Veterinary Bulletin* advises.

COMING MEETINGS

New Jersey Veterinary Medical Association. Hotel Sheraton, Newark, N. J., Feb. 3-4, 1944. J. R. Porteus, Box 938, Trenton, N. J., secretary.

Alabama Polytechnic Institute. Annual short course for veterinarians. Auburn, Ala., Feb. 8-10, 1944. E. S. Winters, College of Veterinary Medicine, Auburn, Ala., administrative secretary.

Louisiana Veterinary Medical Association. Dalrymple Memorial Building, Louisiana State University, Baton Rouge, La., Feb. 16-17, 1944. C. M. Heflin, 2130 Tulip St., Baton Rouge, La., secretary and treasurer.

State Board Examinations

Florida—The Florida State Board of Veterinary Examiners will hold their next examination at the Hotel George Washington, Jacksonville, Fla., Feb. 14-15, 1944. Address all inquiries to H. C. Nichols, Box 405, Ocala, Fla.

Louisiana—The Louisiana State Board of Veterinary Medical Examiners will hold their next examination at the State Capitol Bldg., Baton Rouge, La., Feb. 15, 1944. For further particulars, address: J. A. Goodwin, Louisiana State Board Veterinary Medical Examiners, New Iberia, La.

Nebraska—The Nebraska State Board of Veterinary Examiners will hold their next examination at the State Capitol Bldg., Lincoln, Neb., Feb. 15-16, 1944. For further particulars, address: O. F. Humble, Bureau of Examining Boards, Lincoln, Neb.

BIRTHS

To Dr. (O.S.U., '35) and Mrs. George Berger, 1107 N. Kenwood Ave., Austin, Minn., a son, George William, April 27, 1943.

To Dr. (COLO., '42) and Mrs. D. A. Jackson, 143 Walnut St., Turin Falls, Idaho, a son, Norman Anthen, Aug. 15, 1943.

To Dr. (WASH., '40) and Mrs. John Lee Wilbur, Jr., 615 E. Main, Emmett, Idaho, a daughter, Petrena Adella, Nov. 23, 1943.

To Dr. (U.P., '43) and Mrs. Harold H. Gardner, Litchfield, Conn., a daughter, Elaine Marion, Dec. 19, 1943.

MARRIAGES

Lt. Stewart E. Elting, V.C., (U.P., '43), 1315 Pine St., Philadelphia, Pa., to Miss Dorothy Helen Cole of Bridgeton, N. J., Oct. 2, 1943.

Lt. R. M. Bailey, V.C., (O.S.U., '43), Herington Army Air Base, Herington, Kan., to Miss Doramae Yochum of Sobina, Ohio, Jan. 15, 1944.

DEATHS

Former Dean and AVMA President Dies

Shortly before going to press, word was received of the death, on Jan. 7, 1944, of David S. White of Columbus, Ohio, former dean of the College of Veterinary Medicine, The Ohio State University, and president of the AVMA in 1920-21. A fuller obituary notice will appear in the March issue.

George Albery, 66, (C.V.C. '05) practitioner of Monticello, Iowa, was shot to death in his office by his sister, Grace Albery, 55, who then committed suicide. A quarrel is given as the cause of the tragedy.

H. H. Bair, 58, (O.V.C. '05—N. Y. Am. '06) Hamilton Square, N. J., died Oct. 28, 1943. Dr. Bair was prominent in livestock sanitary and public health work. In connection with his practice at Belvidere, N. J., he served with the

New Jersey Bureau of Animal Industry and for the past twenty years was connected with the state health department, in recent years in charge of rabies control. He is survived by his widow, two sons, two daughters, one brother and two sisters.

Dr. Charles B. Cain

Charles B. Cain (Corn., '23), 43 years old, and for the past six years feed service director for Royal-Stafolife Mills, died Dec. 9, 1943, at Memphis, Tenn., of brucellosis. He nad been critically ill for about two months.



Charles B. Cain

Born in Little Springs, Miss., in 1900, Dr. Cain received his preparatory education in the public schools of his state. His subsequent education, training, and experience indicate how thoroughly he schooled himself to serve the livestock industry and agriculture as a veterinary scientist: B.S. in agriculture, Mississippi A. & M. College, 1921; D.V.M., Cornell University, 1923; M.S. (major in nutrition), Iowa State College, 1924; instructor in veterinary science and bacteriology, Arkansas Polytechnic College, 1924-1930; associate professor of veterinary science, Mississippi State College, 1925-1930; and director of the diagnostic laboratory, Mississippi Livestock Sanitary Board, 1926-1930.

In the summer of 1929, Dr. Cain did graduate work in anatomy and bacteriology at the University of Chicago Medical School. After serving for a time as head animal husbandman at the Mississippi Experiment Station, he was on leave in 1931-1932 and served as research assistant in the Department of Animal Pathology, Rockefeller Institute, Princeton, N. J., where he carried on histological studies of hog cholera, fowl coryza, laryngotracheitis of chickens and pheasants and avian A-avitaminosis. In the fall of 1932, he was appointed professor of veterinary science at Mississippi State College and was also head of the animal pathology at the state experiment station. Dr. Cain was collaborator for Mississippi on diseases of wild birds and game for the Bureau of Biological Survey. He set up the state testing program for Bang's disease in 1934 under the Jones-Connolly Act.

He was a member of the American Society of Animal Production, American Parasitological Society, Tennessee Veterinary Medical Association, Memphis Agricultural Club, and Sigma Xi. In 1930, Dr. Cain served as president of the Mississippi Veterinary Medical Association. He joined the AVMA in 1924.

Dr. Cain was tireless in activities associated with his professional work. He was a member of and director for district 2 of the National Poultry Advisory Council; chairman of a veterinary liaison committee of the American Feed Manufacturers Association and was on the five-man technical advisory group of the Feed Industry Council and U. S. Department of Agriculture.

He is survived by his wife, Mrs. Glenye Halbrook Cain; a daughter, Miss Ada Jo; a son, Charles Janley, all of Whitehaven, Tenn.; his father and two sisters.

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Harry R. Church, 72, (O.V.C. '92) Harrisburg, Pa., native of Wyoming, Pa., died Oct. 14, 1943. Dr. Church was a prominent figure in the livestock sanitary service of his state from 1907 to the date of his retirement in 1936, having served in key positions under the successive state veterinarians. He was a past secretary and past president of the state association, and a member of the AVMA since 1916. In retirement, he was retained as consultant by the state bureau of animal industry until the time of his death. Modest, and an unassuming hard worker in behalf of animal health is the tribute paid to him by the various branches of the veterinary service.

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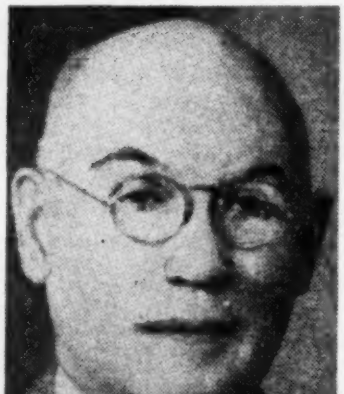
E. E. Cunningham, 80, (O.V.C. '87) pioneer practitioner of Valparaiso, Ind., died at his home in that city, Nov. 6, 1943. Born in Wayne County, Ohio, he located at Valparaiso immediately after graduating. He joined the AVMA

at the Chicago meeting in 1909, and was faithful to the ethics of his profession through a long and useful life.

Dr. William Henry Kelly

Dr. William Henry Kelly (NYCVS '89), lifelong resident of Albany, N. Y., and prominent veterinarian nationally, as well as in his own state, died on Dec. 19, 1943, after a long illness.

Dr. Kelly served as chief veterinarian for the State of New York from 1897 to 1909 and as a veterinarian of the State Department of Agriculture from 1909 to 1941, when he retired. He was former president of the New York State Veterinary Medical Society and former secretary-treasurer of the Hudson Valley Veterinary Society, to both of which he had belonged for many years. He first joined the AVMA in 1889 and had held continuous membership since 1896, serving on various committees and as



William H. Kelly

resident state secretary. He was also a member of the Albany Kiwanis Club, Choral Chorus of Albany, Men's Garden Club, and a director of the local 4-H Club board of directors. He was a thirty-second degree Mason and a member of Wadsworth Lodge, F. & A. M.

Dr. Kelly had a unique record of attendance at AVMA conventions, not having missed a single meeting since 1896 other than in years when he attended sessions of the International Veterinary Congress abroad.

He is survived by his wife, Mrs. Anna S. Kelly; a son, William H. Kelly, Jr., Albany; a daughter, Mrs. C. Harwood Parker, Chatham, N. J., and four sisters.

Paul C. Garner, 36, (Ia.S. '37) Baldwin, Wis., captain, Veterinary Corps, U. S. Army, veterinarian 20th Armored Division, Camp Campbell, Ky., died of Hodgkin's disease Oct. 30, 1943, at U. S. Army Hospital, Battle Creek, Mich. Capt. Garner was graduated at the Army Medical School, Carlisle Barracks, Pa., and had been stationed at Chicago and Fort Knox prior to his last assignment. He is survived by his widow, Frances Garner, a son, a daughter, his father, two sisters and two brothers.

James R. Mahaffy, 68, captain, U. S. A., lt. col. Vet. Res., Honolulu, H. I., died Oct. 6, 1943. He resigned from active service in 1920 to engage in local civil and military activities where he became prominent in various rôles: CCC, American Legion, *et al.* The *Honolulu-Star Bulletin,* in announcing his demise, pronounced the Colonel "One of Hawaii's best-known residents." He was born at Wilmington, Del., June 6, 1875.

C. E. Morford, (G.R. '13) Delton, Mich., first lieutenant, veterinary officer of the A.E.F., World War I, and prominently identified in general practice, is reported dead as of Nov. 10, 1943. Except that the Lieutenant sustained injuries in the line of duty which contributed to his death, no details are given in the report.

William Henry Riddell, 83, (Ont. '86), famous harness horse trainer and prominent figure in that field, died at Orangeville, Ont., Nov. 20, 1943. Dr. Riddell was a practitioner, breeder, and trainer in the standard-bred circle, and was active in these rôles until the age of 77.

Isaasac H. Shaw, 57, (O.S.U. '07) Trenton, N. J., died at his home Nov. 4, 1943. Dr. Shaw was connected with the New Jersey Department of Health for thirty years. He was a longtime member of the state association and joined the AVMA in 1920. His widow, three daughters, and three sons survive.

Jonathan Charles Whitney, 91, (O.V.C. '83), pioneer Michigan practitioner of Hillsdale, Mich., died suddenly while on a walk, Nov. 26, 1943, ending sixty years of active practice. "He remained active in his profession until the day of his death," the *Hillsdale Daily News* reports, in an obituary praising his long activities in local affairs. The Whitney Club, a going veterinary-medical organization of southern Michigan and adjacent territory in Ohio and Indiana, was named for him. He was a charter member of the Michigan State Veterinary Medical Association, founded in 1883, which is claimed to be the oldest of the state associations.

THE VETERINARY PROFESSION AND THE WAR

Status of Physicians, Dentists, Veterinarians, Sanitary Engineers, and Nurses Under Employment Stabilization Programs

Under date of Jan. 5, 1944, the following instruction, known as "WMC Field Instruction No. 61, Supplement No. 1", was sent to all Regional Manpower Directors by the War Manpower Commission.

This instruction rescinds WMC Field Instruction No. 61 which excluded workers in these professions from the provisions of employment stabilization programs. The hiring of such persons is subject to the provisions of the employment stabilization program in the manner described below.

SELF-EMPLOYED

A large proportion of persons in these professions are self-employed. Such persons who desire to change their status to that of a hired employee are not subject to employment stabilization procedures unless they are subject to controlled referral under the applicable stabilization program.

EMPLOYED WORKERS

Less Essential Activities.—Persons in these professions who are employed in other than essential or locally needed activities are not subject to provisions of the employment stabilization program unless they are to be hired for work in a locally controlled occupation or are members of a group which is subject to controlled referral.

Essential or Locally Needed Activities.—Persons in these professions who are employed in essential or locally needed activities are subject to the provisions of the employment stabilization program applicable to other workers in such activities. The determination of eligibility for a statement of availability or referral is to be made by the United States Employment Service in the same manner as for other workers.

REFERRAL OF WORKERS IN THESE PROFESSIONS

If workers in these professions may be hired only upon referral by the United States Employment Service, the United States Employment Service office shall, in every case, obtain the advice of the state chairman of the Procurement and Assignment Service before making the referral, in order to ensure that the worker is referred to a job in which he can make his most effective contribution to the war effort.

DELEGATION OF AUTHORITY TO THE PROCUREMENT AND ASSIGNMENT SERVICE

If a program can be worked out with the Procurement and Assignment Service at the state or local level which will enable it to promptly and adequately handle requests for statements of availability or referral, the state director may, with the approval of the regional director, assign this function to the Procurement and Assignment Service. Under such arrangements, the Procurement and Assignment Service constitutes, for purposes of regulation No. 7, a part of the United States Employment Service.

APPEALS

Appeals of employers or workers covered by this instruction shall be made in conformity with regulation No. 5, and the applicable procedures and instructions governing appeals. In preparing cases appealed from the decision of the United States Employment Service or the Procurement and Assignment Service, functioning as the United States Employment Service with respect to these cases, the War Manpower Commission area director shall, in every case, seek the advice of the state chairman or the designated representative of the Procurement and Assignment Service and transmit his recommendations to the Area Management-Labor Committee as part of the appeal hearing. At the regional level, the War Manpower Commission regional director shall seek the advice of the Corps Area Procurement Assignment Committee and shall transmit their recommendations to the Regional Management-Labor Committee hearing the appeal.

BUY MORE IN '44

Plus "what it takes" on the fighting front, victory has to be bought with War Bonds—your bonds.

Veterinarians in Essential Activities "Frozen" Unless Cleared

The War Manpower Commission announced on Jan. 10, 1944, that physicians, dentists, veterinarians, sanitary engineers, and nurses who are salaried employees in essential or locally needed activities are hereafter subject to the same provisions of any employment stabilization program which applies to other workers in such activities.

Such professional employees may not change their jobs without getting statements of availability from the United States Employment Service, or being referred to new jobs by the USES.

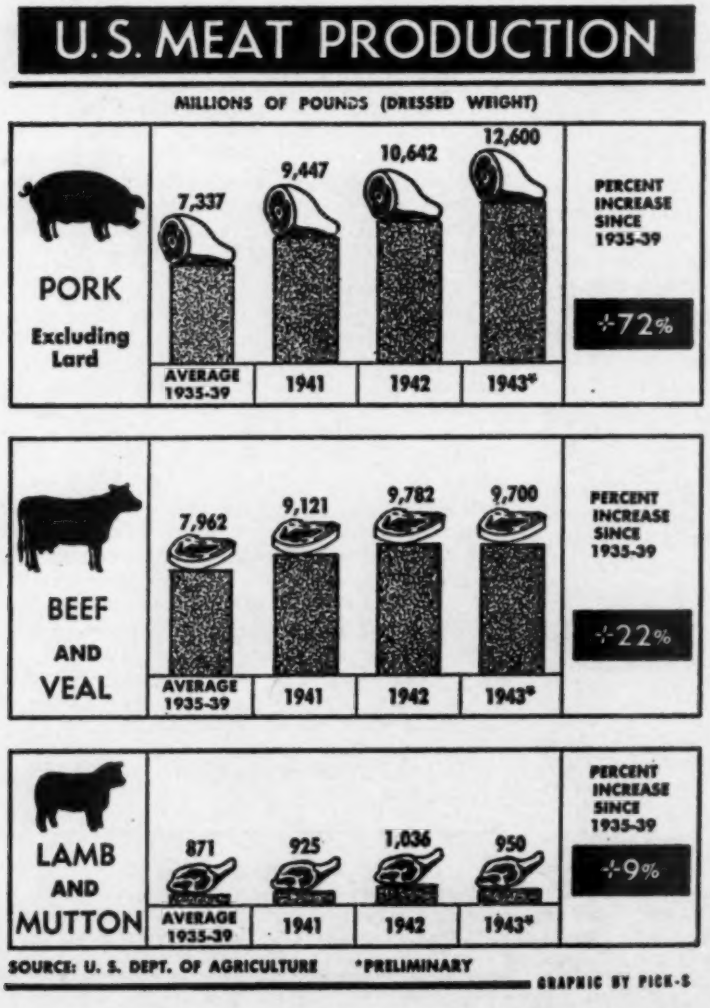
The USES, however, it was emphasized, will make referrals of such employees only after consulting the state chairman of the Procurement and Assignment Service. This procedure, it was explained, will insure referral of these professional workers to jobs where they can make their most effective contributions to the war effort.

Upon approval of the Regional War Manpower Director, any state director may delegate the duty of referring such employees to new jobs to the state and local offices of the Procurement and Assignment Service.

Prisoners of the Japanese

Among the officers of the Army Veterinary Corps who were stationed in the Philippines at the outbreak of the war, the following have been officially reported as prisoners: Lt. Col. Josiah W. Worthington (KSC '17); Major Harry R. Leighton (UP '21); Capt. William S. Gochenour, Jr., (UP '37); and Capt. Charles B. Frank (UP '38).

It was first thought that Lt. Col. Worthington had lost his life while trying to escape from Bataan but word was eventually received that he had been taken prisoner.



It would be interesting to know the exact extent to which the health of farm animals contributes to the increment of food poundage, shown in the accompanying chart. It is certain that without a well-organized veterinary service, animal diseases would have caused a minus sign to appear where the plus signs are shown.

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Actual experiment by competent, disinterested research investigators has shown high potency for Lockhart Rabies Vaccine for many years. The development of the Habel (mouse) test has enabled us to make studies of production methods which have resulted in material improvement in our vaccine. In test animals it confers almost perfect protection, even when challenged by massive doses of virus injected directly into the brain.

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Metal tag and vaccination certificate are supplied with each dose of vaccine. Special certificates and metal tags bearing the veterinarian's name are furnished at nominal cost when veterinarians desiring them contract for an amount of vaccine corresponding to the number of special tags desired.

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. . . together with dated, serially numbered plastic tags and attractive certificates of vaccination.



Write for quotations on special personalized tags and vaccination certificates. And, upon request, ethical educational booklets, client mailing cards, and an attractive office poster.

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